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FIELD MANUAL

**ARMY COMBAT SERVICE
SUPPORT AIR TRANSPORT
OPERATIONS**

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HEADQUARTERS, DEPARTMENT OF THE ARMY
JULY 1971

FOREWORD

This manual is published as a training, planning, and operational guide for unit commanders, staff officers, noncommissioned officers, and other personnel concerned with Army combat service support air transport operations as part of the transportation service under the TASTA-70 (The Administrative Support, Theater Army, 1965-70) doctrinal concept. The information in this manual can be used to facilitate reorganization under TASTA-70 organizational concepts.

This manual is a consolidation of FM 55-46 and 55-46-1 (Test). Unit designations and terminology are updated and characteristics of new Army aircraft authorized the units discussed in the manual are added. New chapters have also been added covering duties of personnel in the heavy helicopter company, personnel management and administration, security and defense, and safety. These added chapters give more detailed procedures in each specific area covered to make this a combined doctrinal and procedural unit-type manual.

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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 15 July 1971

ARMY COMBAT SERVICE SUPPORT AIR TRANSPORT OPERATIONS

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* This manual supersedes FM 55-46, 31 May 1967, and FM 55-46-1 (Test), 7 April 1967.



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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Purpose and Scope

a. This manual provides guidance for commanders, staff officers, and other interested personnel concerned with the organization and operation of Army aviation units employed as a part of a transportation service in a theater of operations. It applies to the following aviation units:

(1) Headquarters and headquarters company, combat aviation battalion (TOE 1-256).

(2) Assault support helicopter company (TOE 1-258).

(3) Heavy helicopter company (TOE 55-259).

(4) Aviation service support company (TOE 1-407).

b. The manual emphasizes the operations of Army aviation units in providing combat service support air movement and rapid administrative service airlift. It covers organization, command relationships, doctrine on employment, and operational procedures related to Army combat service support air transport operations in a communications zone, a field army area, or other geographical location. The manual describes the employment of Army air transport over an air line of communication and in support of both scheduled and unscheduled air movements. The manual also covers combat support operations for the above units when applicable.

c. The contents of this manual do not change or rescind the role of the US Air Force in providing the Army with air transport as established by current policy and directives (FM 100-27). The provisions of the US Army/US Air Force agreement of 6 April 1966 concerning the employment and control of certain aircraft are included where applicable.

d. The material presented herein is applicable without modification to general, limited, and cold war and to internal defense and development operations.

e. This manual is in consonance with the following international standardization agreements (STANAG's) which are identified by type of agreement and number at the beginning of each appropriate chapter in the manual.

Title	NATO STANAG	CENTO STANAG	SEATO SEASTAG
Air Transport of Dangerous			
Cargo -----	3327	3327	3327
Aircraft Marshalling -----	3117	3117	3117
Safety Emergency and Signalling Procedures for Tactical Air Transport Operations -----	3465	-----	3465
General Rules Covering the Transport of Loads by Helicopter -----	3468	3468	3468

1-2. Recommended Changes

Users of this manual are encouraged to submit recommended changes or comments to improve the manual. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons will be provided for each comment to assure understanding and complete evaluation. Comments should be prepared using DA Form 2028 (Recommended Changes to Publications) and forwarded direct to the Commanding Officer, US Army Combat Developments Command Transportation Agency, Fort Eustis, Virginia 23604.

1-3. Mission

a. All Army air transport operations are directed toward supporting ground forces in combat. No aviation transport operation is an end in itself; all must be keyed to provide the best possible support that can be given to the ground forces. To provide this support, all commanders and staffs must thoroughly understand the mission and objective and what impact their individual efforts have on the total accomplishment. It is not sufficient for the Army air transport commander to know only the airlift plan. He must

also understand the ground combat mission and the overall concept of operations. Likewise, it is not sufficient for the ground commander to concern himself only with the ground plan. Mutual understanding on the part of both commanders and their subordinates is the only way to capitalize on the advantages gained from Army aviation and to derive the necessary tactical flexibility therefrom.

b. Army aviation units referred to in paragraph 1-1a have the mission of providing combat service support air transport of personnel and cargo when employed as a part of a transportation service in a theater of operations. This mission can be further defined when related to spe-

cific aviation operational units. Both an assault support and a heavy helicopter company provide airlift for combat service support operations. An assault support helicopter company provides air movement of cargo and personnel, and a heavy helicopter company is employed primarily to airlift heavy or outsize cargo loads and to provide supplementary airlift of personnel. These aviation units also have a mission of providing combat support airlift when directed by the appropriate commander. An aviation service support company provides administrative service airlift to a support command and its subordinate units through the employment of both fixed and rotary wing aircraft.

Section II. EMPLOYMENT CONSIDERATIONS

1-4. General

The inclusion of Army aircraft in the Armywide transportation service has added a mode that can provide rapid movement of personnel and cargo over broad areas with little regard for surrounding terrain. However, this mode has also introduced certain operational factors that must be recognized and understood so that adequate support can be safely provided. Personnel involved with the use and employment of Army aircraft receive technical guidance and advice from qualified Army aviation personnel. In addition, applicable employment principles and certain operational factors that affect the capability of this mode of transportation are discussed in this section.

1-5. Principles of Employment

a. *Economy of Utilization.* Several factors must be considered in evaluating this principle. Aircraft are generally in great demand, are relatively expensive to operate, and require more hours of maintenance per operating hour than surface transportation. Transport aircraft should not be employed when another mode of transportation can effectively accomplish the mission. In addition, economy can be effected by using the proper type of aircraft. As an example, it is usually more efficient and economical to schedule assault support (medium) transport helicopters for troop movement and resupply operations and to reserve the heavy lift helicopters for operations involving movement of heavy or outsize items.

b. *Freedom of Utilization.* Freedom of utilization permits a commander to employ organic, at-

tached, or supporting Army aviation units in a way which contributes most to the successful accomplishment of his mission. When Army air transport is providing combat service support, it is normal for the appropriate support commander to retain centralized control of these units. However, when Army air transport provides combat support, the units normally are placed under the control of the appropriate tactical commander. As aviation resources are limited, the commander must not hoard the capability provided him. He should use it only as required to perform a particular mission. The commander should use what is needed of what has been allocated but must not hold aircraft merely to be sure that they will be available to meet any future contingency.

c. *Ready Availability.* The ability to respond rapidly to demands for Army combat service support air transport increases the value of this mode of transportation to supported commanders. Ready availability is obtained by locating aviation units as close as practical to the supported units. Also, the aircraft's inherent mobility permits support to be made available to units that are located throughout a wide area. Ready availability is also obtained by intelligent scheduling of operational aircraft and by programming of required maintenance.

1-6. Operational Considerations

a. *Air Density.* Unlike surface modes of transportation where the payload of a particular vehicle is relatively fixed, aircraft are affected by air density, which in turn influences the payload that can be carried on a specific mission. Simply stated, any volume of air is less dense than the air

on which it rests. Therefore, air is less dense at higher altitudes. At lower altitudes, the denser air offers more support (lift). Consequently an aircraft performs more efficiently since greater lift increases the weight lifting capability of the aircraft. Air density is affected by temperature, altitude, and humidity.

(1) *Temperature.* An increase in temperature causes a decrease in air density and results in a reduced lift capability and the useful payload an aircraft may carry. The amount of air that occupies 1 cubic inch at a low temperature will expand and may occupy 2 or 3 cubic inches as the temperature goes higher. It is important to recognize that the payload of a particular aircraft can change, depending on the time of day when a flight is scheduled. Usually, early morning temperatures favor operations and noonday heat causes a decrease in the efficiency of the aircraft.

(2) *Altitude.* The thin air at high altitudes causes a lessening of aircraft operating efficiency. This factor is particularly important when operating from landing sites located high above sea level.

(3) *Humidity.* An increase in humidity causes a decrease in air density. Air always contains some moisture in the form of water vapor, but the amount varies from almost none to 100 percent. This water vapor is known as humidity. As the humidity increases, water particles displace air, causing a decrease in air density and reducing the performance of an aircraft.

b. Distance. The distance to be flown is particularly important when using Army air transport because the allowable cargo load placed aboard each aircraft is computed after the amount of fuel, plus reserve, is determined. Aircraft normally carry less fuel, with a relative reduction in distance flown, when maximum payload is desired; conversely, payload is reduced when maximum distance is the important factor.

c. Aircraft Availability. Aircraft availability is directly influenced by the operational readiness of the air transport units. Proper scheduling of aircraft during operations and efficient maintenance favorably affect aircraft availability. The most reliable and effective airlift is provided when air transport units program a percentage of assigned aircraft as available on a daily basis. This percentage normally varies between types and models of aircraft. This permits required maintenance to be efficiently scheduled. Scheduled maintenance—that is, maintenance which is performed at regular intervals—is performed mostly on the basis of

hours flown. Nonscheduled maintenance is that which results from unpredicted requirements for repair due to component failure, battle damage, crash damage, or unusual conditions, such as excessive dust. To provide an acceptable percentage of aircraft on a continuous basis, the aviation unit commander will have some of his aircraft undergoing required maintenance, either scheduled or unscheduled, at all times. If all aircraft that are operational in a unit are flown every day, the spacing and control of scheduled maintenance would not be maintained and the result would soon be reflected in the daily availability rate. By proper scheduling of both maintenance and operations, the unit can establish and maintain an acceptable daily aircraft availability percentage. Given time and support, air transport units can provide maximum aircraft for individual or special operations. However, such effort should not be considered as normal, and the extra effort expended to obtain maximum aircraft interrupts the daily aircraft availability percentage and decreases the long-range effectiveness of the unit. Guidelines published in (C) FM 101-20, United States Army Aviation Planning Manual (U), should be used as a general guide to expected availability rates.

d. Weather. Weather influences the operations of Army air transport units. While low ceilings and limited visibility may restrict operations, such conditions may be used to advantage in shielding the aircraft from enemy observation. However, adverse weather generally reduces the efficiency of Army air transport operations. Although Army transport aircraft may operate under instrument flight conditions, commanders should establish weather minimums to preclude scheduling flights that jeopardize the safety of aircraft and personnel. Weather minimums should be established commensurate with the experience of the pilots, type of aircraft employed, urgency of mission, navigational aids available, terrain along the flight route, and time of operation.

e. Enemy Situation. The location and capabilities of enemy forces should be considered before flight routes for Army combat service support air transport operations have been determined. Every effort should be made to avoid areas known to contain enemy ground fire, particularly areas containing antiaircraft weapons. Air transport units should have prearranged evasive-action flight plans in the event that enemy aircraft are encountered.

f. Terrain. Army air transport is less affected by terrain obstacles than are other modes of transportation. However, terrain features must be considered for each operation. Terrain influences the following:

- (1) Location of takeoff and landing sites.
- (2) Flight routes.
- (3) Identification of prominent landmarks for navigational purposes.
- (4) Location of navigational aids.
- (5) Location of emergency landing sites.

g. Crew Member Requirements. The availability of rated crew members has an important effect on the operational capability of aviation units. Requirements for crew members increase considerably in Army air transport units providing combat service support on a sustained basis. Certain scheduled operations may require that double crews be assigned to a unit to ensure completion of a mission. Commanders with assigned or attached aviation units are responsible to ensure that crew members are assigned to flights in such a manner as to provide adequate safety of operations. Such commanders may also establish local flight time limits for crew members. As a guide, crew members who operate in rotary wing aircraft should be limited to 90 hours during a 30-day period. Crew members who operate in fixed wing aircraft should be limited to a maximum of 100 hours during a 30-day period. For detailed guidance concerning crew member requirements, see AR 95-1.

h. Vulnerability. Army combat service support air transport should be operated and employed in such a manner as to ensure a reasonable degree of safety commensurate with the assigned mission. While losses in combat that can be directly attributed to enemy action must be anticipated, such losses can be held to a minimum if sound judgment is used and the aircraft's limitations are recognized. Losses can be reduced by proper coordination and by the use of surprise, maneuver, proper flight techniques, ground security, fire support, and armed aerial escort.

i. Flight Routes. Many demands for the use of available airspace are generated during combat operations. The employment of aircraft of the Army and other services, and of artillery, drones, and missiles must be coordinated to ensure adequate safety, proper identification, and efficiency of operations. Army combat service support air transport units are responsible to insure that flight routes are properly coordinated and ap-

proved by the appropriate air traffic control facility before commencing operations.

j. Communications and Intelligence.

(1) Combat support, combat service support, and administrative service air transport operations require that adequate communications be established before the beginning of every mission. Voice communication is necessary among the following: Army air transport command and operational units, supported organizations, in-flight aircraft, and takeoff and landing sites. Adequate radio communication is necessary to control the flight, to provide safety, to permit identification, and to be a means of relaying intelligence information. All aircraft crews must know how to enter appropriate radio nets to make intelligence spot reports to the ground or aviation units in whose area they are operating. If such reporting channels do not exist, the senior aviation command unit is responsible for establishing a means for reporting spot intelligence information from aircraft within a specified area of operations. Secure circuits should be used when available to report intelligence information.

(2) Some intelligence information may be of the type that should be passed immediately to higher headquarters. Such information would pass from the flightcrew to an aviation detachment or aviation company headquarters, to the aviation battalion S2, and then to the appropriate command headquarters. Each aviation battalion and company must remain constantly aware of the fact that every flight in which their personnel participate may produce information that can be converted into vital intelligence. For this reason, all personnel must be instructed to be alert and to make a visual reconnaissance of the terrain along each flight route during every operation.

(3) To gain maximum results, aviation unit intelligence officers should establish an EEI (essential elements of information) file in the unit's flight operations office. This file, similar to a NOTAM (notice to airmen) file, should be checked by flightcrews prior to each flight. It should include the frequencies and call signs of the local spot report intelligence nets. An entry should be placed on all flight plans or other clearance forms used for this purpose indicating that the EEI file has been checked. Where possible, all aviators and crew members should receive an intelligence briefing and debriefing covering these EEI prior to and following each flight.

k. Operational Security. Operational security is a prime requirement for all headquarters and op-

erating units. Each organization should maintain continuous surveillance of its operations to ensure that its activities do not provide intelligence to the enemy. Successful enemy exploitation of friendly stereotyped patterns of activity and associated communications have been detected in past operational security surveys. Examples of specific sources of information or indication of activities identified by prior operational security surveys are listed in the following subparagraphs:

(1) *Operational indicators.*

(a) Stereotyped patterns of reconnaissance activity.

(b) Stereotyped patterns of attack (ingress and egress) against specific types of targets or targets in a particular location.

(c) Stereotyped times of preparatory airstrikes and field artillery fire support in relation to the attack by ground or amphibious forces.

(d) Stereotyped sequences of events comprising the various phases of an operation.

(e) Coordination with civil agencies which do not have proper safeguards for classified information; for example, air traffic control procedures, coordination of convoy movement, etc.

(2) *Sources of information for human intelligence collectors.*

(a) Subverted allied military or indigenous civilian personnel.

(b) Public information releases.

(c) Posting of operations orders, flight plans, schedules, etc., in insecure areas.

(d) Distinctive emblems or paintings on vehicles and aircraft.

(e) Identification of recipients of supplies being shipped to support an operation along with operation nicknames, delivery deadlines, etc.

(f) Logistic buildups and prepositioning of supporting materials and facilities.

(g) Special religious services just prior to operations.

(3) *Sources of information from communications activities.*

(a) Plain language communications covering an entire spectrum of activity associated with planning and preexecution phases of operations.

(b) Use of unchanging or infrequently changing call signs and/or call sign suffixes by combat elements and those supporting elements which are active only when an operation is imminent.

(c) Stereotyped message characteristics, such as precedence, addressee patterns, message lengths, and codes or cryptosystems which are unique to preoperations activity.

(d) Use of unchanging frequencies and repetitive use of specific frequencies in given operations areas.

(e) Movement and/or checkout of communications equipment in operations area prior to commencement of operations.

(f) Significant increases or decreases in the volume of enciphered communications (not protected by traffic flow security feature).

(g) Transmission at times when communications are not normally active.

(h) Use of unauthorized codes; that is, homemade.

(i) Use of brevity codes in the belief that they provide security.

(j) Use of authorized codes which provide only 24, 48, or 72 hours protection for encoding information of longer term security.

1-7. Characteristics of Army Aircraft

a. General.

(1) Army aircraft are capable of operating in the environment of the ground soldier. These aircraft are rugged in design, are highly maneuverable, are capable of short takeoff and landing or vertical takeoff and landing (STOL/VTOL), and can be maintained under field conditions. Army fixed wing aircraft can operate from small unimproved fields or airstrips, and helicopters can operate from areas unsuited for fixed wing operations. To achieve sustained operations under the conditions mentioned above, simplification of design is emphasized for both operational and maintenance characteristics of Army aircraft. While maintenance requirements vary with each type of aircraft, there are characteristics common to all categories which make for ease of maintenance and servicing. These characteristics include maximum accessibility to engine and other components; sectional or unit assembly replacement of complicated parts; and interchangeability of such items as instruments, generators, and other components.

(2) Configuration specifications and performance data for those Army aircraft authorized to the organizations described in this manual are listed in table 3-1. This information is given only as a guide for preliminary planning. Actual allowable cargo loads vary greatly because of temperature, elevation, winds, and other variables existing at the time of operation. It must be understood that these variables preclude the possibility of providing a figure for an allowable cargo load that will remain constant.

b. *Terms.* The following terms are used in those subsequent paragraphs that provide information related to the airlift capability of specific Army transport aircraft:

(1) *Basic weights.* The empty weight of an aircraft in its basic configuration, including all special mission equipment, integral equipment, instrumentation, and trapped fuel and oil but excluding passengers, cargo, crew, and usable fuel and oil.

(2) *Operating weight.* The basic weight, plus

those variables which remain substantially constant for a mission. Those items include the crew, crew's baggage, emergency equipment, and oil. Passengers, cargo, and usable fuel are excluded.

(3) *Gross weight.* The total weight of the loaded aircraft and its contents.

(4) *Allowable cargo load—allowable cabin load.* The load of either cargo and/or passengers, determined by weight, cubic displacement, and distance to be flown, which may be transported by specified aircraft.

CHAPTER 2

COMMAND AND STAFF RELATIONSHIPS (STANAG's 3327 and 3468)

2-1. Requirements for Army Combat Service Support Air Transport Service

a. The evolution of warfare has generated a need for greater mobility within the Army. Technological advances in weaponry have reduced the time available to a ground commander while broadening his area of operations. It is essential that today's Army be able to move rapidly over large areas and to operate effectively in all types of environments. Organic mobility within the Army is available to the ground commander in several ways. Army units are authorized organic surface and air vehicles to support mobility requirements directly related to the unit's mission and where the need for such vehicles is continuous or fixed. Mobility within the Army is also obtained by the employment of certain surface and aviation units that provide transportation on an area basis or in support of a particular military force. These transportation units satisfy a need to move personnel and cargo at speeds and distances commensurate with the requirements of the tactical forces.

b. The complex transportation requirements of the Army in a theater of operations necessitate that a transportation service be organized to coordinate available transportation modes, to provide proper planning, and to achieve adequate control of operations. Army combat service support air transport is an integral part of the transportation service. Helicopter companies provide air movement of personnel and cargo during combat service support and combat support operations. Aviation service support companies provide rapid administrative service airlift that enables a support command to have prompt, dependable air transportation on a mission basis.

c. Army combat service support air transport is included in the organizational structure of Army forces employed in operations that cover a wide spectrum of situations and conditions. Operations may range from internal defense and development

assistance to cold or limited war situations to general war. Operations may be characterized by diverse terrain features, a variety of climatic and weather conditions, and combat situations influenced by manmade obstacles ranging from primitive to modern.

d. Because of the mission versatility and responsiveness of Army combat service support air transport, considerable reliance is placed on this mode of transportation to provide airlift of personnel and cargo for the Army forces. All Army air transport units that possess a personnel and cargo lift capability have the supplemental mission of air movement of sick and injured personnel. Army Medical Department air ambulance units provide primary movement of sick and injured personnel within the Army medical evacuation system. The extent of Army combat service support air transport service established in a particular area of operations depends on the overall transportation requirements of the force involved.

2-2. Theater Army Support Command

a. The theater army support command (TASCOM) is a major subordinate command of the theater army. Headquarters, TASCOM, provides combat service support through subordinate operating commands to Army forces in a theater of operations and to other forces as designated by the theater army commander. Services provided by subordinate operating commands include general support to one or more field armies consisting of 8 to 12 divisions each, direct and general support to the communications zone, and rear area security and damage control within the communications zone.

b. The relationship of the theater army and the theater army support command insofar as it affects transportation is described in detail in FM 55-1. Broadly stated, within the overall responsibilities of the theater army commander is the responsibility for the assignment and use of the

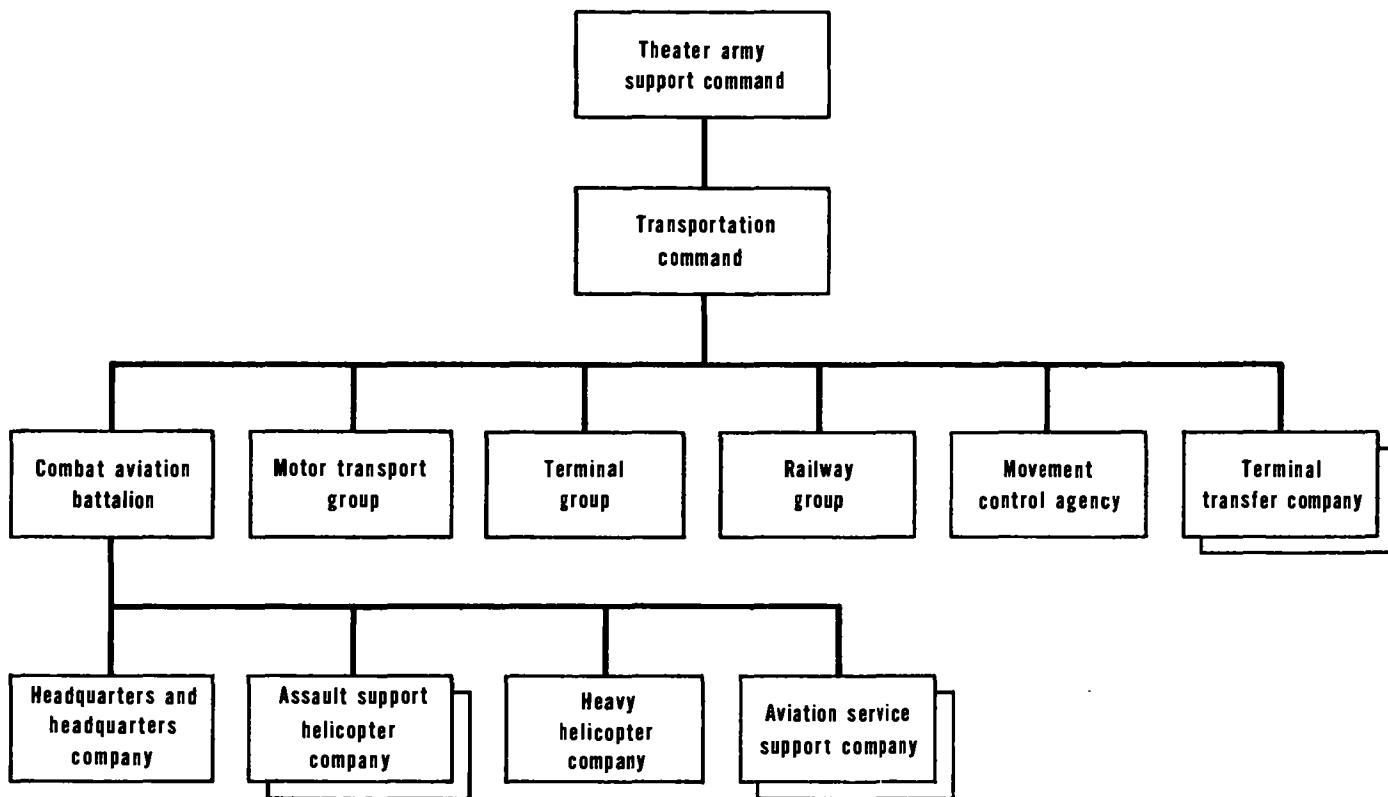


Figure 2-1. Army combat service support air transport in a type TASCOM transportation command to support a 12-division force.

transport capability allocated to the theater army. The theater army commander suballots the Army-allocated transport capability to the field army and TASCOM commanders. He gives these commanders responsibility for managing the movement capability so allotted. The transport capability suballotted to TASCOM includes the Army portion of intratheater airlift provided by other services. It also includes certain Army air transport that the theater army commander may allocate to TASCOM for operations within the communications zone. Transportation services of TASCOM are supervised and managed by a transportation command.

c. The transportation command, TASCOM, is one of the subordinate operating commands and operates under the general staff supervision of the assistant chief of staff (ACS), movements. The command provides transportation and movements services in a theater of operations. It commands and controls the units that operate the transport modes and perform terminal services. It also coordinates transportation movements in TASCOM, including the use of the Army-allocated portion of intratheater airlift provided by other services. Within the staff organization of the transporta-

tion command, an ACS, movements, exercises staff supervision over and coordinates the operation of the transportation services provided by the command.

d. Army combat service support air transport is included in the transportation service for TASCOM and is furnished by aviation units of the transportation command (fig 2-1). Army combat service support air transport is provided by assault support (medium) and heavy helicopter companies and aviation service support companies. A combat aviation battalion headquarters is attached to the transportation command and provides command, control, and coordination of the operating companies. The type, number, and mix of operating companies depends on the specific Army airlift requirements of TASCOM. Army air transport units employed in a transportation command are described in chapter 3.

e. The concept of dispersing facilities and installations in a theater of operations to avoid providing profitable targets to an enemy requires that a TASCOM have an Army combat service support air transport capability within the communications zone available to perform the following tasks:

(1) Provide an immediately responsive, highly mobile airlift capability for the rapid deployment of rear area protection (RAP) forces personnel throughout the communications zone.

(2) Provide air transport administrative service for the TASCOM command headquarters and subordinate units in the communications zone. This includes rapid air movement for general officers and staffs, groups of individuals, high priority items, aerial reconnaissance, traffic control, aerial radiological survey, and courier service. In providing courier service, the aircraft provide a manual backup for the communications system of the automatic data processing activities of the command.

(3) Provide lateral air transport of personnel and high priority cargo between facilities and in-

stallations without duplicating existing Air Force routes.

(4) Provide feeder service to and from Air Force terminals.

(5) Supplement Army air ambulance resources by air movement of sick and wounded personnel when requested by medical authority.

f. When intratheater airlift from other services is not available or when field army requirements exceed the intratheater airlift capability on hand, the TASCOM Army combat service support air transport units may provide air transport into and within the field army area.

2-3. Field Army Support Command

a. A field army support command (FASCOM) is a major subordinate command of a field army.

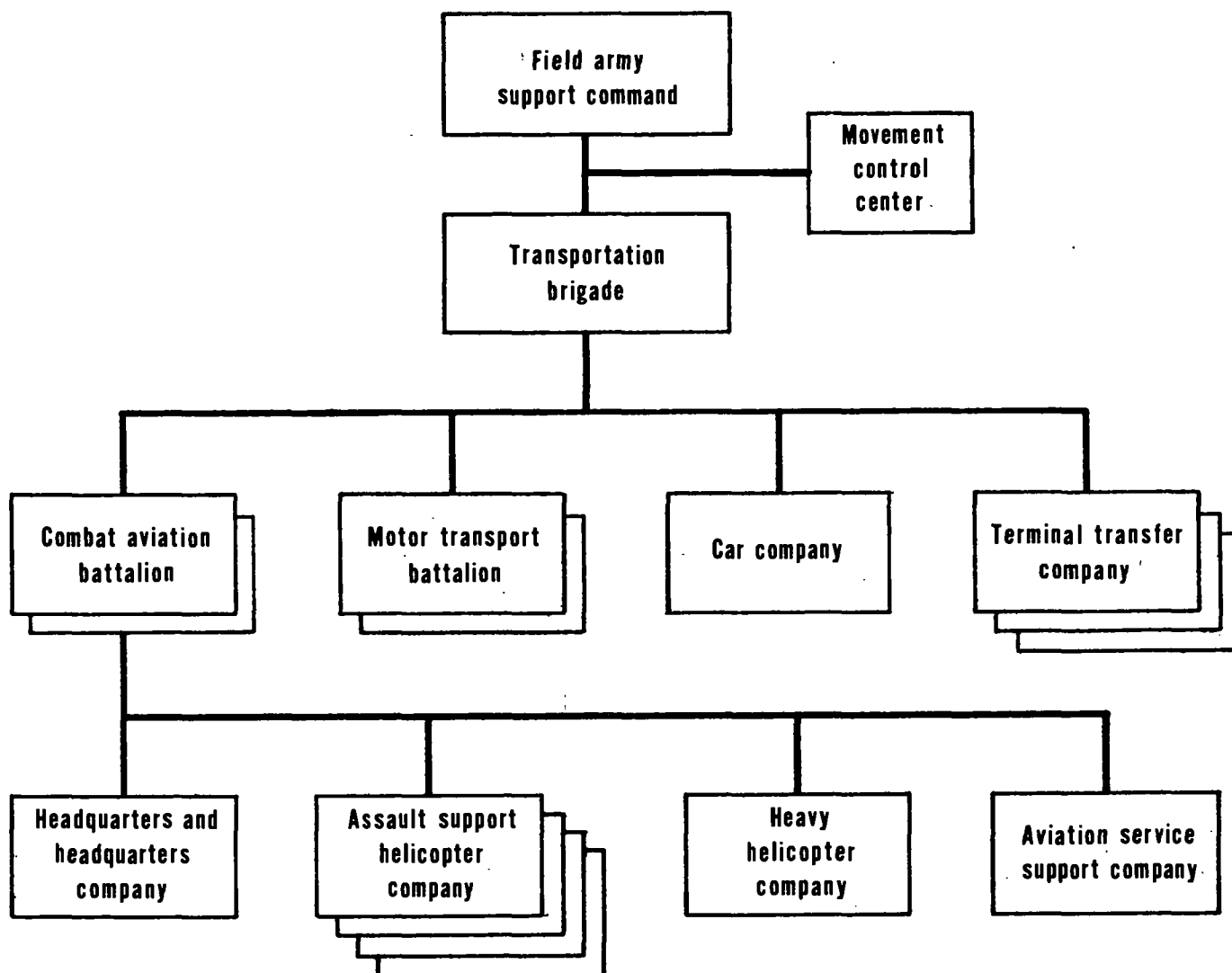


Figure 2-2. Army combat service support air transport in a type FASCOM transportation brigade to support a 12-division force.

It plans, directs, and supervises the provision of combat service support, less construction, through functional control centers and subordinate operating commands. It also plans and directs the provision of rear area security and damage control of the field army service area.

b. A FASCOM is designed to support a field army composed of a headquarters, a variable number of army and corps combat and combat support nondivisional units, a field army support command to which nondivisional combat service support units are assigned, and a variable number of corps and divisions. For planning purposes, when organized to support an 8- to 12-division force dispersed for positional warfare, a field army generally includes an area approximately 135 to 360 kilometers (75 to 195 nautical miles) in width and 150 to 300 kilometers (80 to 160 nautical miles) in depth.

c. The subordinate operating command that provides Armywide transportation services for a FASCOM is a transportation brigade. The brigade headquarters is a planning and control organization, and subordinate units carry out the actual operations. Within the staff organization of the transportation brigade, the ACS, movements, exercises staff supervision over and coordinates the operation of the transportation services provided by the command. Army combat service support air transport units are an essential operating element of the FASCOM transportation brigade (fig 2-2). The extensive geographical area in which the FASCOM transportation service operates makes it necessary that an established amount of Army airlift be available to the brigade on a continuous basis.

d. Helicopter transport companies attached to a FASCOM transportation brigade are employed primarily in combat service support operations. Normally, command and control of the operating aviation companies is provided by a combat aviation battalion. Assault support helicopter companies provide scheduled and nonscheduled airlift of cargo and personnel. A heavy helicopter company provides airlift of heavy bulk cargo, outsize items, and heavy equipment. Typical loads may include repair parts, missiles and components, nuclear munitions, mail, priority supplies, and equipment. Additional airlift requirements exist for the movement of rear area protection personnel and replacements. The companies provide the FASCOM movement control center (MCC) and aviation battalion with current and forecast status reports of air transport capability. Require-

ments for air transport support are received at the MCC and processed in accordance with priorities established by the FASCOM commander. Air movements are assigned to the companies by the FASCOM MCC through the combat aviation battalion.

e. The helicopter companies also provide combat support airlift to the field army when required. Such a situation may exist when the airlift requirements of the combat forces exceed the capabilities of organic combat support aviation units of the divisions and corps. The field army commander may direct that the FASCOM transport helicopter units be placed in direct support, under the operational control, or attached to a tactical force for specific operations. The units will operate in support of the appropriate tactical commander, who must ensure that they are released to the FASCOM transportation brigade immediately on conclusion of the specific tactical mission.

f. An aviation service support company is employed on an area basis to provide administrative service airlift for the FASCOM headquarters and its subordinate commands. The company normally is attached to a combat aviation battalion that provides command and control. Missions are normally scheduled and approved through the aviation battalion.

2-4. Corps Support Brigade or Command

A corps support brigade or command is the organization that provides combat service support to a corps. A corps consists of a variable number of divisions and combat support units. Transportation services provided to support a corps depend primarily on the relative position of the corps in the theater organization.

a. If the corps is a part of a field army, it will obtain combat service support from a FASCOM corps support brigade. Aviation units attached to the FASCOM transportation brigade provide combat service support airlift.

b. If the corps is an independent corps—that is, operating as the senior Army element in the theater with the combat service support responsibilities of a theater base—a corps support command (COSCOM) is established that has the capability to provide base services as well as those services normally provided by a FASCOM. A transportation brigade is authorized to an independent corps and it contains sufficient Army combat service support air transport units to meet airlift requirements.

2-5. Division Support Command

a. A division is a tactical force consisting of a relatively fixed command, staff, combat, and support structure to which are assigned combat battalions in types and numbers appropriate to perform specific missions in an anticipated operational environment. A division support command is a major subordinate command of the division and provides direct support to elements of the division. The division support command normally has no organic Army combat service support air transport capability.

b. The Army combat service support air transport organization established to provide airlift for a division depends on the relative position of the division in the theater organization.

(1) If the division is a part of a corps, it is supported by its organic Army aircraft plus the aviation units attached to the transportation brigade of the supporting FASCOM.

(2) If the division is employed as an independent division—that is, operating as the senior Army organization in the theater and having the combat service support responsibilities of a theater base—a division support brigade is established. This brigade provides theater base services as well as services normally provided to the division by a COSCOM. A transportation group is organized as part of the division support brigade and provides transportation services. Included in the group is a combat aviation battalion with Army aviation companies that provide the independent division with combat service support airlift.

2-6. Subordinate Unified or Specified Commands

a. Subordinate unified or specified commands are organized for broad continuing missions. Such commands may provide the command and control of forces engaged in internal defense and development operations. Subordinate unified commands normally assume military control over military assistance advisory elements located within their

areas of interest. When US foreign assistance to a host country includes sizable US combat, combat support, and combat service support forces, a military assistance command may be organized.

b. A support command normally will be established as a major subordinate command of a subordinate unified command or military assistance command to provide command and control of combat service support units and operations. Transportation units may be assigned to the support command in quantity and by type needed to provide efficient transportation services. When operations attain major intensity, a transportation brigade or transportation composite group will normally be assigned to the support command to provide combat service support and, when called on by the appropriate tactical commander, also to provide combat support. The type and number of Army combat service support air transport units assigned are determined by the specific requirements.

c. Internal defense and development assistance operations require a considerable amount of Army combat service support air transport. Operations in this type of an environment are characterized by a high degree of mobility and maneuvering, organization of fires, and use of terrain. There is the constant threat of insurgent activity and the disruption of the normal means of transportation in the host country. Opposing forces are usually dispersed throughout the host country and the operational environment cannot be identified by a FEBA (forward edge of the battle area) or by the continuous lateral disposition of forces.

d. The heavy demand for airlift makes centralized control of Army combat service support air transport units essential. When these units are providing combat service support, they will operate under the control of the support command. When these units are requested to provide airlift for combat support operations, they will operate under the control of the appropriate US tactical commander or senior US adviser of the force supported.



CHAPTER 3

ORGANIZATION

Section I. GENERAL

3-1. Basic Organization

a. General.

(1) The basic operational units of the Army combat service support air transport organization are the assault support helicopter company, the heavy helicopter company, and the aviation service support company. Combat aviation battalion headquarters provide centralized command and control. Each battalion is tailored by attachment of aviation companies as required.

(2) Tables of organization and equipment (TOE) applicable to Army air transport units provide three strength levels. Level one is the same as former TOE full strength. Levels two and three are successive 10-percent reductions of personnel and possibly of equipment. An organization may operate under a modification table of organization and equipment (MTOE) when authorized by the appropriate major commander. Additional support from TOE 500-series may be necessary when air transport units are occupying semipermanent base camps during operations in undeveloped areas or in internal defense activities. Such additional support may consist of base security forces, installation engineers and repair personnel, POL (petroleum, oil, and lubricants) storage and handling specialists, and water point operators.

(3) Each company consists of a headquarters element, which includes personnel who control or assist in the control of the unit and who provide administrative, supply, and service support; a maintenance element, which provides organizational and direct support maintenance services; and appropriate task elements, which form the major part of the organization. The basic characteristics of these elements and the primary duties and responsibilities normally assigned to key personnel are outlined in *b* through *d* below. Variations may be made at the discretion of the commander, limits prescribed by higher authority, to effect optimum use of personnel for the accom-

plishment of his assigned mission in a specific situation. The command prerogative must be preserved to the greatest practicable extent at all levels to maintain operational flexibility.

b. Headquarters Element. The size of the headquarters element and the allocation of duties and responsibilities to its authorized personnel vary with the complexity of the unit and the variety of its normally assigned tasks. The headquarters normally are divided into command groups (for control) and service groups (for administration, supply, and service support). At battalion level, the headquarters element is in the headquarters and headquarters company. Duties and responsibilities of battalion staff personnel are based on the functions of command (FM 101-5). The headquarters of the aviation companies also contain a command group and a service group. A brief description follows:

(1) *Command group.* The primary responsibility of the company commander is the successful accomplishment of the unit's assigned mission under all conditions (garrison or combat). This includes responsibility for training, discipline, control, administration, and welfare of assigned personnel and for security, maintenance, and proper use of all authorized equipment. The operations officer, first sergeant, and communications chief form the company command group to assist the commander in carrying out these responsibilities.

(2) *Service group.* The service group of the company headquarters provides for the company supply and mess. Major duties of the service group are performed by the supply sergeant and the mess steward.

c. Maintenance Element.

(1) Effective aircraft maintenance is a prerequisite of successful operation. The maintenance responsibility is therefore one which no commander can afford to neglect. The company

commander personally ensures effective maintenance by emphasis on maintenance in individual and unit training programs, by inspection of equipment, and by provision of a realistic organizational maintenance program. The capability of the company is judged by aircraft availability, and capability increases in proportion to the effectiveness of the maintenance program. The size of the maintenance element, type and amount of equipment, and personnel skill levels are determined by the type of task equipment, the level of maintenance, and the degree of mobility authorized and assigned by appropriate TOE.

(2) Every member of the maintenance platoon or section must be proficient in his military occupational specialty (MOS). The leader of the maintenance element is a rated commissioned officer qualified as an aircraft maintenance officer. He is the adviser to the company commander in all maintenance matters. Since he directs and supervises all activities of the maintenance element, he must be an efficient manager. He plans maintenance operations, provides for emergency repairs, and plans the arrangement of tools and equipment to provide efficient service and repairs. He is responsible for the preparation of forms, records, and reports showing the status of maintenance. He ensures the adequate supply and authorized stockage of maintenance items and repair parts through timely requisition and constant control. He assists the commander in planning the unit maintenance program and in preparing the maintenance portion of the unit standing operating procedure (SOP).

d. Task Element. The task elements of an Army combat service support air transport company are its operating platoons. The commander of each platoon is a command representative of the company commander at platoon level. He is responsible to the company commander for training, guidance, and supervision of his platoon in compliance with company policies, orders, and directives. Platoon commanders are assigned additional company duties to broaden their knowledge and to assist the company commander. These duties are normally rotated among the company junior officers and include such assignments as mess officer, supply officer, motor officer, security officer, administrative officer, and other assignments of a temporary nature.

3-2. Defense of Unit Position

a. General. The commander of an Army combat service support air transport unit is responsible

for establishing adequate defensive measures at the unit operating site. When two or more units are located at the same site, the senior commander is responsible. Normally, air transport units need to be provided with additional security forces to maintain a perimeter defense for protection of the aircraft and the operating site. Additional security forces are necessary for several reasons:

(1) Army air transport units cannot adequately defend themselves while authorized TOE personnel are operating and maintaining aircraft on a sustained basis.

(2) Army air transport units normally occupy a large area at an operating site because of the number of authorized transport aircraft and the necessity for dispersion.

(3) Transport aircraft provide an enemy force with a lucrative target and are prime subjects for attack and destruction.

b. Passive Defense. Passive defense includes measures taken to reduce the probability of and to minimize the effects of damage caused by hostile action without the expectation of taking the initiative. Army combat service support air transport units must implement passive defense measures by dispersion, cover, concealment, and deception. Aircraft should be parked inside revetments, when available, that are dispersed throughout the operational site. Maximum use of natural terrain features such as hills and wooded areas will provide cover and concealment for personnel and aircraft and for other unit equipment. Aircraft and other easily identified objects may be camouflaged with paint that will provide minimum contrast with surrounding terrain. Other passive defense measures include the use of listening posts, barbed wire, mines and explosives, communications security, and electronic warning devices.

c. Active Defense. Active defense includes the employment of limited offensive action to repulse an enemy attack on a position. Army combat service support air transport units are limited in their capability for active defense and normally depend on supporting security forces for protection against enemy air and ground threats.

3-3. Employment of Non-Air-Defense Weapons Against Hostile Aircraft

a. General. It is necessary for commanders, supervisors, and users of non-air-defense weapons to recognize the capability of organic small arms and automatic weapons to deliver large volumes of fire against low-flying hostile aircraft. The em-

ployment of non-air-defense weapons should be considered in relation to the following precepts:

(1) Recognize the threat of enemy airmobile operations, enemy close air support, interdiction, and reconnaissance aircraft against any unit in a combat theater.

(2) Recognize the potential effect of a large volume of small arms fire that can be furnished by organic weapons against low-flying hostile aircraft.

(3) Recognize the necessity of commanders' establishing detailed SOP's for the identification and engagement of hostile aircraft to include how identification is made, which personnel will fire, techniques of fire to be used, rules for engagement, and controls to be exercised.

(4) Recognize the necessity for training individual soldiers in aircraft identification, techniques of firing at aerial targets, and response to control methods.

(5) Emphasize the aggressive engagement of hostile aircraft with organic weapons as specified in carefully prepared SOP's and rules for engagement.

(6) Recognize the threat to friendly aircraft in failure to discriminate between hostile and friendly aircraft.

(7) Place in proper perspective the tactic of withholding fire to preclude disclosure of positions.

b. Concept.

(1) The substantial low-altitude threat faced by units in a combat theater may be partially countered by aggressive use of the large volume of fire which non-air-defense weapons (for example, small arms and automatic weapons) can place against this threat.

(2) Exercise of the individual and collective right of self-defense against hostile aircraft must be emphasized. Large volumes of fire from non-air-defense weapons have proven capable of destroying both high- and low-speed aircraft or of disrupting their attack.

(3) Indiscriminate use of non-air-defense weapons must be prevented because of the danger

to friendly aircraft and troops. Effective and safe employment of these weapons necessitates Army-wide training.

c. Rule for Engagement. In the absence of orders to the contrary, individual weapon operators will engage attacking aircraft. Engagement of all other hostile aircraft will be on orders issued through the unit chain of command and will be supervised by unit leaders. Nothing in this rule is to be taken as requiring actions prejudicial to accomplishment of the primary mission of the unit.

d. Techniques. The following techniques should increase the destructive and deterrent effect against hostile aircraft. Aircraft may be divided into two categories: low-speed and high-speed. Low-speed aircraft include helicopters and liaison, reconnaissance, and observation fixed wing propeller aircraft. High-speed aircraft include all other propeller aircraft and all jet fixed wing aircraft. This distinction will result in simplified engagement procedures.

(1) *Engagement of low-speed aircraft.* In accordance with the rule for engagement, engage low-speed enemy aircraft with aimed fire, employing the maximum weapon rate of fire. Aerial gunnery techniques (less lead) generally applicable to all small arms and automatic weapons are given in FM 23-65.

(2) *Engagement of high-speed aircraft.* In accordance with the rule for engagement, engage high-speed enemy aircraft with maximum fire aimed well in front of the aircraft and above its flight path to force it to fly through a pattern of fire. This technique is not unaimed barrage fire, but requires a degree of aimed fire. It does not, however, call for careful estimation of aircraft speed and required lead.

(3) *Use of tracer ammunition.* Automatic weapons should use the highest practical proportion of tracer ammunition to enhance the deterrent or disruptive effect.

(4) *Massed fire.* Units should employ a massed fire technique when using small arms and automatic weapons in an air defense role.

Section II. COMMAND AND OPERATIONAL UNITS

3-4. Headquarters and Headquarters Company, Combat Aviation Battalion

a. Mission. The combat aviation battalion through attached aviation companies, provides air movement of personnel and cargo as a part of a

transportation service in a theater of operations. The headquarters and headquarters company provides command, control, staff planning, and administrative supervision for attached companies.

b. Assignment. The headquarters and headquar-

ters company, combat aviation battalion, is normally assigned to a support command when operating as part of a transportation service. This may be a theater army support command (TASCOM), a field army support command (FASCOM), a corps support command (COSCOM), or a support command of an independent force.

c. Capabilities. At full strength, this unit is capable of providing—

(1) Command, staff planning, and supervision of the activities of three to seven air transport companies.

(2) Site selection of the general area for subordinate units.

(3) Staff supervision and command guidance for maintenance and logistic functions of attached Army units.

(4) Planning and supervision of the battalion communications system.

(5) Necessary communications and terminal facilities for operation of the unit airfield.

d. Organization. The headquarters and headquarters company, combat aviation battalion (fig 3-1), is organized with a battalion headquarters and a headquarters company. Details of the organization are contained in TOE 1-256.

(1) *Battalion headquarters.* The battalion headquarters is organized to function as the command and control headquarters for the employment of all assigned or attached aviation units. The battalion headquarters consists of the battalion commander, executive officer, battalion staff officers, and battalion sergeant major. The battalion headquarters consists of the battalion commander, executive officer, battalion staff officers, and battalion sergeant major. Two liaison officers are provided to maintain liaison with supported or attached units. These liaison officers, who are rated Army aviators, must have a thorough knowledge of the operating capabilities and limitations of the aircraft, must be able to interpret and evaluate terrain features suitable for selection of loading and unloading sites, and must be able to interpret and evaluate the effects of weather and other variables on the successful accomplishment of the mission. Command vehicle transportation, communications, and other mission items of equipment for the battalion commander and staff are located in the S1 section of headquarters company. Aircraft support for necessary command and control is provided by three observation helicopters located in the battalion S4 section.

(2) *Headquarters company.*

(a) *Company headquarters.* The company headquarters provides administrative services for the battalion headquarters and headquarters company. These services pertain to individual requirements of assigned personnel, including mess, supply, quarters, supervision of nonduty-hour activities, and maintenance of administrative records. The company headquarters contains the company commander, first sergeant, supply sergeant, mess steward, and other enlisted personnel required to accomplish the mission.

(b) *S1 section.* This section, under the supervision of the adjutant/S1, provides personnel and administrative support services to the battalion to include mail management, correspondence management, and files management services; local reproduction; publications management services; technical guidance and assistance in personnel management and personnel action matters to unit commanders; reports control; and administration of the battalion leave, rest and recuperation, rotation, character guidance, religious activities, special services, saving, housing, voting, legal, and welfare programs. The adjutant/S1 keeps the battalion commander informed on personnel problems, trends, and accomplishments.

(c) *S2/S3 section.* The S2/S3 section provides the personnel required to assist the S2 and the S3 in the performance of their duties. Sufficient personnel have been provided to operate on a 24-hour basis. The section formulates plans, policies, and procedures for the battalion commander on operations and training. The section makes studies and prepares estimates of tactical situations, prepares operations orders, executes reconnaissance as directed, and plans measures for security of the battalion area. The section provides, plans, and coordinates the assignment of operational tasks to subordinate units and maintains statistical data on unit operations. Current availability status of subordinate units is maintained and furnished to higher headquarters. The operations and intelligence section is the center of activity within the battalion, and the successful employment of attached aviation companies depends on the planning and coordination performed here. The section consists of the assistant S3 and sufficient enlisted personnel to perform its mission.

(d) *Communications section.* The communications section consists of the communications chief, radioteletype team chief, and sufficient radioteletypewriter and teletypewriter operators, switchboard operators, and wiremen to provide

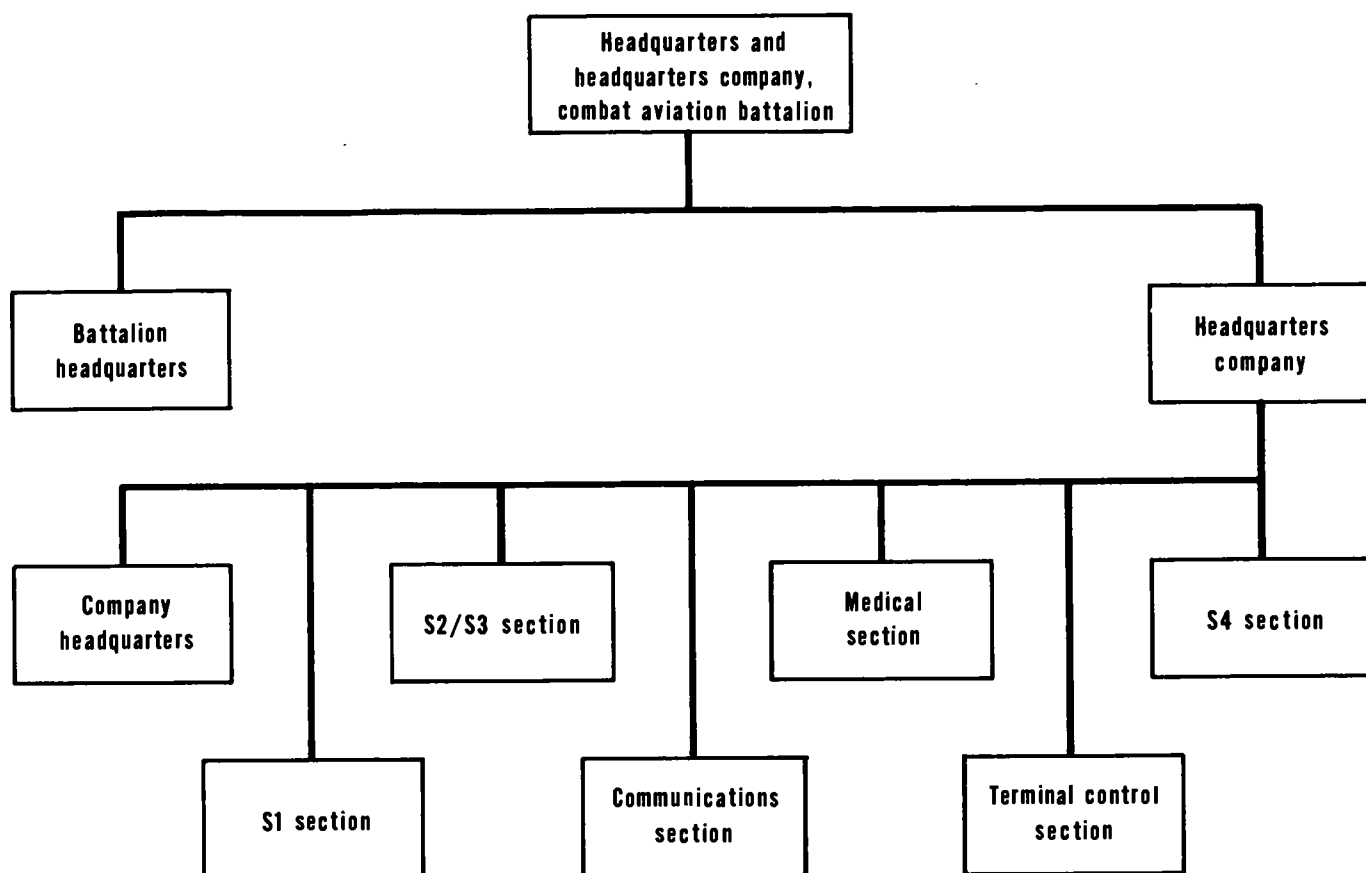


Figure 3-1. Headquarters and headquarters company, combat aviation battalion.

the battalion headquarters with the required communications operational capability. A radio mechanic is authorized to perform organizational maintenance on organic radio equipment, and two message clerks operate the battalion message center. A detailed discussion of communications in an aviation battalion is given in FM 1-15.

(e) *Medical section.* The medical section furnishes emergency medical treatment, operates a battalion aid station, evacuates patients from dispersed elements of the battalion to the battalion aid station, and provides medical supervision of sanitation within the battalion. The medical section contains the section sergeant and sufficient medical specialists to perform its mission.

(f) *Terminal control section.* The terminal control section consists of a section chief, tower and ground controlled approach (GCA) supervisors, and sufficient tower and GCA operators to provide terminal traffic control at the unit airfield during day, night, and inclement weather operations. This service is provided on a 24-hour basis for all aviation units located at the airfield.

(g) *S4 section.* This section consists of the

aviation maintenance officer, a unit supply technician, an automotive maintenance technician, and sufficient enlisted personnel to perform assigned functions. The section provides staff planning and supervision of maintenance and supply functions of the battalion and coordinates maintenance and supply functions of attached units. Personnel in this section perform organizational maintenance on the two utility helicopters authorized the unit.

e. Concept of Employment.

(1) The headquarters and headquarters company, combat aviation battalion, provides command and control for three to seven attached aviation companies. There is no fixed aviation battalion structure but rather the attachment of subordinate units depends on a particular operational situation, type and frequency of missions to be flown, and the size and environment of the area of operations. The internal organizational structure of the battalion headquarters makes it adaptable for employment as a command and control unit when the primary air transport mission is either combat support or combat service support and administrative service airlift.

(2) When the combat aviation battalion is providing combat service support and administrative service airlift, it normally is employed as a part of a transportation service in a theater of operations. Administrative service airlift, as used in this manual, is the utilization and control of the assets of the aviation service support company, TOE 1-407. Normally, the control of this capability is separate from the combat service support air transport capability that is controlled by the movement control center (MCC). The combat aviation battalion reports directly to the appropriate transportation headquarters. This may be a transportation command at TASCOM or a transportation brigade at FASCOM or COSCOM. When the battalion is providing similar air transport for a support command of a subordinate unified or specified command or an independent force, it will be employed under the control of the senior transportation headquarters. Combat service support and administrative service airlift operations originating in a support command area normally will be repetitive in nature, and the aviation battalion will be able to accurately determine the type and number of subordinate units needed to sustain the operation over a prolonged period. In such a situation, the organizational structure of the aviation battalion can be stabilized. It is desirable for the aviation battalion to retain centralized control of the subordinate units when providing combat service support and administrative service airlift.

(3) Combat service support air movements requests are made to the servicing transportation movements office (TMO), who coordinates the request with the MCC of a support command. When approved, the combat service support air movement mission is given to the aviation battalion by the MCC. The aviation battalion coordinates and assigns missions to its attached companies in accordance with priorities and procedures established by higher headquarters. The aviation battalion ensures that the daily and forecast operational status of aircraft assigned to the attached companies is provided to the MCC and the ACS, movements, so that airlift requirements may be properly scheduled and met.

(4) When the aviation battalion is called on to provide combat support, it may be placed in direct support of, under operational control of, or attached to a field army, corps, or independent force, depending on the tactical situation. When employed in combat support operations, the battalion functions in support of the appropriate tactical

commander for the length of time necessary to complete the mission.

(5) The aviation battalion headquarters normally will establish and operate the airfield traffic control facility to be used by its attached companies. Because the battalion must be capable of supporting both combat support and combat service support operations, it must maintain a constant state of readiness. Proximity to subordinate units will provide for more rapid coordination and will reduce the time needed to prepare for specific missions.

(6) The battalion is capable of independent operations. However, where only token US forces are present and normal combat service support troops and area logistic support points are limited or nonexistent, additional support must be planned for and provided concurrently with the deployment of the battalion. The additional support includes the means to provide all classes of supply, water points, medical facilities, engineer support, and other services not readily available from indigenous sources.

3-5. Assault Support Helicopter Company

a. Mission. The mission of the assault support helicopter company is to provide air transport of personnel and cargo for combat service support and combat support operations. This mission includes but is not limited to—

- (1) Movement of personnel and cargo.
- (2) Supplementing Army air ambulance resources.
- (3) Air movement of reserve forces in preparation for combat operations.
- (4) Rapid displacement of rear area protection forces.

b. Assignment. The assault support helicopter company is assigned as required. It normally is assigned to a support command when operating as part of a transportation service with the primary function of providing combat service support. It may be assigned to a field army, corps, or independent force when its primary function is combat support. The company is normally attached to a combat aviation battalion when operations are of such magnitude as to justify a command type aviation unit.

c. Capabilities. At full strength, the company has the following capabilities:

- (1) Transport of personnel and cargo in day and night operations including periods of inclement weather.

(2) Aerial resupply of forces in the combat zone.

(3) Transport of nuclear munitions, nuclear weapons and associated equipment, and dangerous cargo. Air movement of cargo falling within these categories must comply with existing regulations and directives. (See TM's of the 55-1100-series for transporting dangerous cargo by helicopter.)

(4) Supplementing of Army air ambulance resources.

(5) This company is 90 percent mobile using organic vehicles and aircraft.

d. Organic Transport Aircraft. One of three models (A, B, or C) of the CH-47 Chinook is the organic assault support (medium) transport helicopter assigned to an assault support helicopter company. The A and B models are powered by two 2,850-horsepower turbine engines and the C model by two 3,750-horsepower turbine engines mounted on the aft fuselage and driving tandem,

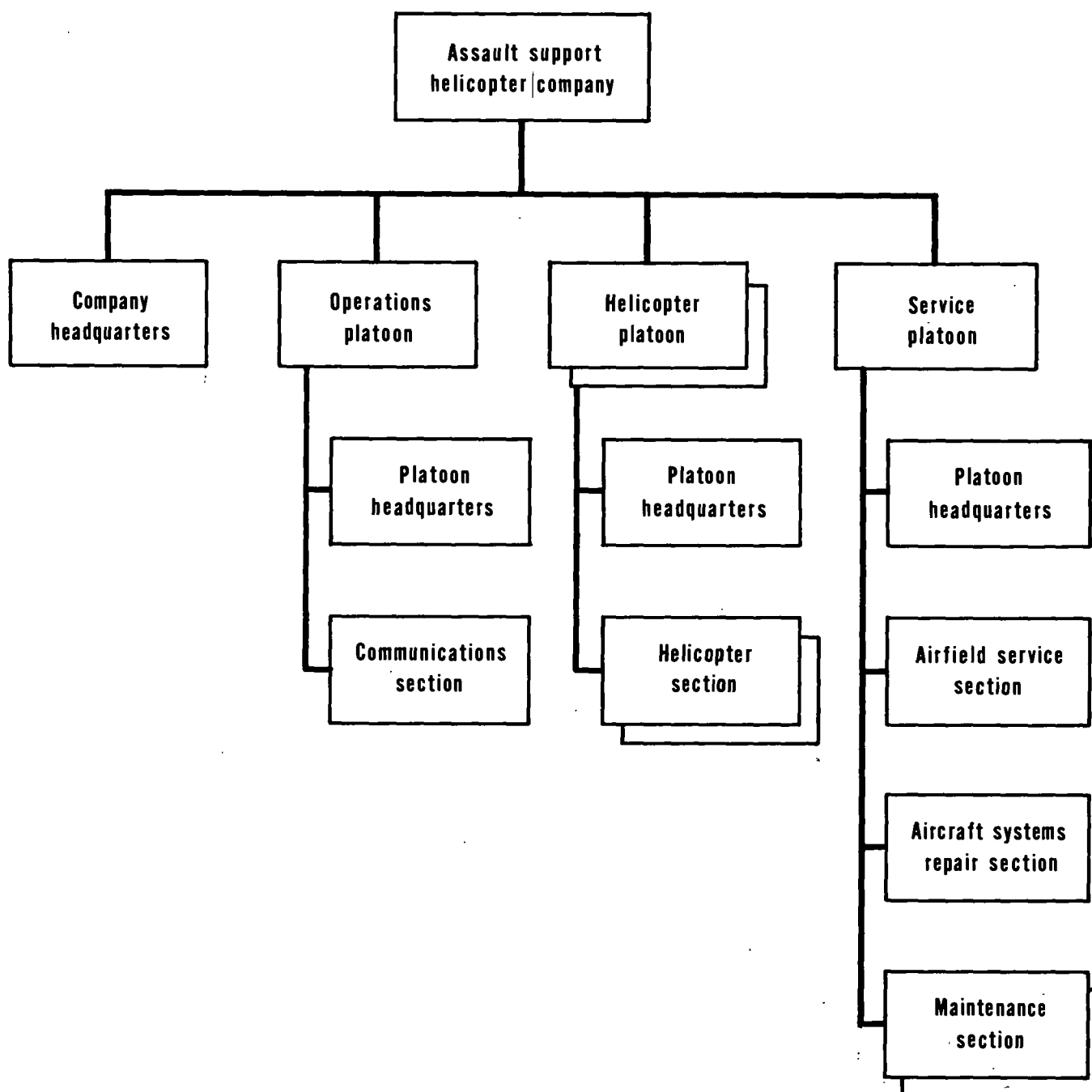


Figure 3-2. Assault support helicopter company.

Table 3-1. Aircraft Characteristics

Aircraft ^a	Fixed wing			Rotary wing						
	U-8D	U-8F	U-21A	OH-6A	OH-58A	CH-47A	CH-47B	CH-47C	CH-54A/B	UH-1D/H
Normal crew	1 (2 for IFR)	1 (2 for IFR)	2	1 (+ OBSN)	1 (+ OBSN)	4	4	4	4	2
Operational characteristics ^{bcd}										
Maximum allowable gross weight (lb) -	7,300	7,700	9,500	2,400	3,000	33,000	40,000	46,000	42,000/47,000	9,500
Basic weight (lb) ---	4,990	5,490	5,383	1,163	1,586	18,153	19,591	20,481	20,800/21,000	4,800/4,840
Useful load (lb) ----	2,310	2,210	4,167	1,237	1,417	14,888	20,445	23,380	21,200/25,800	4,700/4,660
Payload/normal mission (lb) -----	690	590	2,000	650*	760*	10,000	15,000	18,200	11,650/16,250*	2,855/2,816
Fuel capacity -----	230 gal 1,380 lb	230 gal 1,380 lb	378 gal 2,457 lb	61.5 gal 400 lb	73 gal 475 lb	621 gal 4,036 lb	621 gal 4,036 lb	1,131 gal 7,351.5 lb	1,353 gal 8,794 lb	220 gal 1,430 lb
Fuel consumption rate lb/gal per hr) ^e -----	208.14 lb 34.69 gal	204.54 lb 34.09 gal	450 lb 72 gal	143 lb 22 gal	189 lb 29 gal	2,120 lb 342 gal	2,780 lb 427 gal	3,038 lb 467 gal	3,614/4,20 lb 556/651 gal	553 lb 85 gal
Normal cruising speed (kt) -----	160	160	210	121	120	120	150	155	95/110	92/110
Endurance at cruise (plus 30 minutes reserved) (hr + min) -----	5 + 30	5 + 30	5 + 00	3 + 18	3 + 30	1 + 22	0 + 57	1 + 57	1 + 50/1 + 30	2-08
Grade of fuel	115/145	115/145	JP-4	JP-4	JP-4	JP-4	JP-4	JP-4	JP-4	JP-4
Passenger capacity (each)										
Troop seats -----	5	5	10	3	4	33	33	33	1	11
Normal capacity ----	5	5	6	3	4	33	33	33	1	11
Total capacity w/crew -----	6	6	12	4	5	37	37	37	5	18
Litters and ambulatory -----	NA	NA	3/3	NA	2/4	24	24	24	0	6
External cargo (lb)										
Maximum recommended external load ^f -----	NA	NA	NA	NA	NA	16,000	20,000	20,000	20,000/25,000	4,000
Rescue hoist capacity -----	NA	NA	NA	NA	NA	600	600	600	NA	600
Cargo loading winch capacity ----	NA	NA	NA	NA	NA	3,000	3,000	3,000	15,000/25,000	NA

Aircraft ^a	Fixed wing			Rotary wing						
	U-8D	U-8F	U-21A	OH-5A	OH-58A	CH-47A	CH-47B	CH-47C	CH-54A/B	UH-1D/H
Dimensions (ft-in)										
Length—fuselage ^b	31' 6"	33' 4"	35' 10"	23' 0"	32' 3.5"	51' 0"	51' 0"	51' 0"	70'	40' 7"
Length—blades unfolded	NA	NA	NA	30' 4"	40' 11.8"	98' 3.3"	99' 0"	99' 0"	88' 5"	57' 1"
Length—blades folded	NA	NA	NA	23'	NA	51' 0"	51' 0"	51' 0"	NA	NA
Width—blades folded	NA	NA	NA	4' 6"	NA	12' 5"	12' 5"	12' 5"	NA	NA
Width—tread	12' 9"	12' 9"	12' 9"	6' 9"	6' 3.5"	11' 11"	11' 11"	11' 11"	19' 9"	8' 7"
Height—extreme	11' 7"	14' 2"	14' 2"	8' 3"	9' 6.5"	18' 6.6"	18' 7.8"	18' 7.8"	24' 5"	13' 0"
Diameter—main or forward rotor	NA	NA	NA	26' 4"	35' 4"	59' 1.25"	61' 0"	60' 0"	72' 0"	48' 0"
Diameter—tail or rear rotor	NA	NA	NA	4' 3"	5' 2"	59' 1.25"	61' 0"	60' 0"	16' 0"	8' 6"
Pusher prop	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Wing span	45' 4"	45' 11"	45' 11"	NA	NA	NA	NA	NA	NA	NA
Cargo door (in)										
Dimensions: width/height	35 x 36.5	50.5 x 26.5	50.5 x 53	40 x 26	40 x 3b	90 x 78	90 x 78	90 x 78	NA	74 x 49
Location—side of fuselage	Right	Left	Left	Left and right	Left and right	Rear	Rear	Rear	Rear	Left and right
Cargo compartment										
Floor above ground	48"	48"	48"	24.5"	22.5"	30"	31.2"	31.2"	27" (POD)	15'
Usable length	86"	110.5"	110.5"	5' 9"	39"	360"	360"	30' 2"	329"	92'
Floor width	53.5"	55"	55"	3' 2"	50"	90"	90"	7' 6"	104.5"	96'
Height (clear of obstruction)	53"	55"	55"	3' 2"	50"	78"	78"	6' 6"	78"	54'
Maximum cargo space (cu ft)	115	158	158	38	56"	1,474	1,474	1,474	1,552	220

^aA = attack
C = cargo
O = observation
U = utility

^bAll data computed at standard conditions at sea level.

^cDetailed weight computations and characteristics taken from current 55-series technical manuals.

^dData subject to change resulting from developmental testing.

^eDoes not meet 200 nautical mile range requirement of normal mission definition.

^fAviation gas computed on 6 pounds per gallon. JP-4 computed on 6.5 pounds per gallon.

^gMaximum load the aircraft is capable of lifting.

^hDimension from nose to end of tail (Does not include antennas, tail rotor, etc.)

Definitions:

Maximum allowable gross weight: The maximum allowed total weight of the aircraft prior to takeoff; the "basic weight" of the aircraft plus the crew, personnel equipment, special devices, passengers/cargo, and usable fuel and oil. This is limited by structure, power available, or landing load.

Basic weight: The empty weight of an aircraft in its basic configuration, to include all appointments, integral equipment, instrumentation, and trapped fuel and oil, but excludes passengers, cargo, crew, fuel, and oil.

Useful load: The load carrying capability of an aircraft. It includes the payload, crew, and usable fuel and oil, and required fuel for the mission. Here it is the difference between "maximum allowable gross weight" and "basic weight" as defined above. Thus, it is evident that a reduction of the fuel load will reduce the endurance and increase the payload. Full oil is required for all missions.

Payload: The useful load less the crew, full oil, and the required fuel for the mission.

Normal mission: Payload available computed under the following conditions:

1. Fuel for 200 nautical mile range plus 30-minute reserve.
2. Flight altitude 200 feet mean sea level, standard temperature.
3. Takeoff maximum gross weight (weight of crew included).

Normal cruising speed: The true airspeed which an aircraft can normally be expected to maintain at some standard power setting below rated military power. This speed will vary with altitude. (Example: U-8D/F—normal is 165 at 65 percent power at 8,000 feet).

Endurance at cruising speed: The time that an aircraft can remain airborne at normal cruising speed with fuel aboard without using the required fuel reserve. The data listed under "operational characteristics" is computed utilizing full fuel minus a 30-minute reserve.

three-blade rotors, simultaneously. The helicopter is equipped with a nonretractable quadricycle landing gear. It has a power-operated rear loading ramp, which permits straight-in loading. The sealed hull gives the CH-47 a 30-minute continuous in-water landing capability. Table 3-1 gives characteristics of these aircraft.

e. Organization. The assault support helicopter company (fig 3-2) is organized with a company headquarters, an operations platoon, two helicopter platoons, and a service platoon. Details of the organization are contained in TOE 1-258.

(1) *Company headquarters.* The company headquarters provides command and administration for the company and supervision of operations, maintenance, supply, and training. Company headquarters contains the company com-

mander, first sergeant, mess steward, supply sergeant, and sufficient personnel to perform the administrative and mess functions of the company.

(2) *Operations platoon.* The operations platoon contains a platoon headquarters and a communications section. The operations platoon provides the personnel to install, maintain, and assist in operating communication equipment used by the company.

(a) *Platoon headquarters.* The operations platoon headquarters is the center of the company's activities, and its organization and efficiency determine the degree of success of the unit in supporting assigned missions. It includes a flight operations officer who is responsible for the overall operations of the platoon to include coordination of flight missions and airfield services. He is

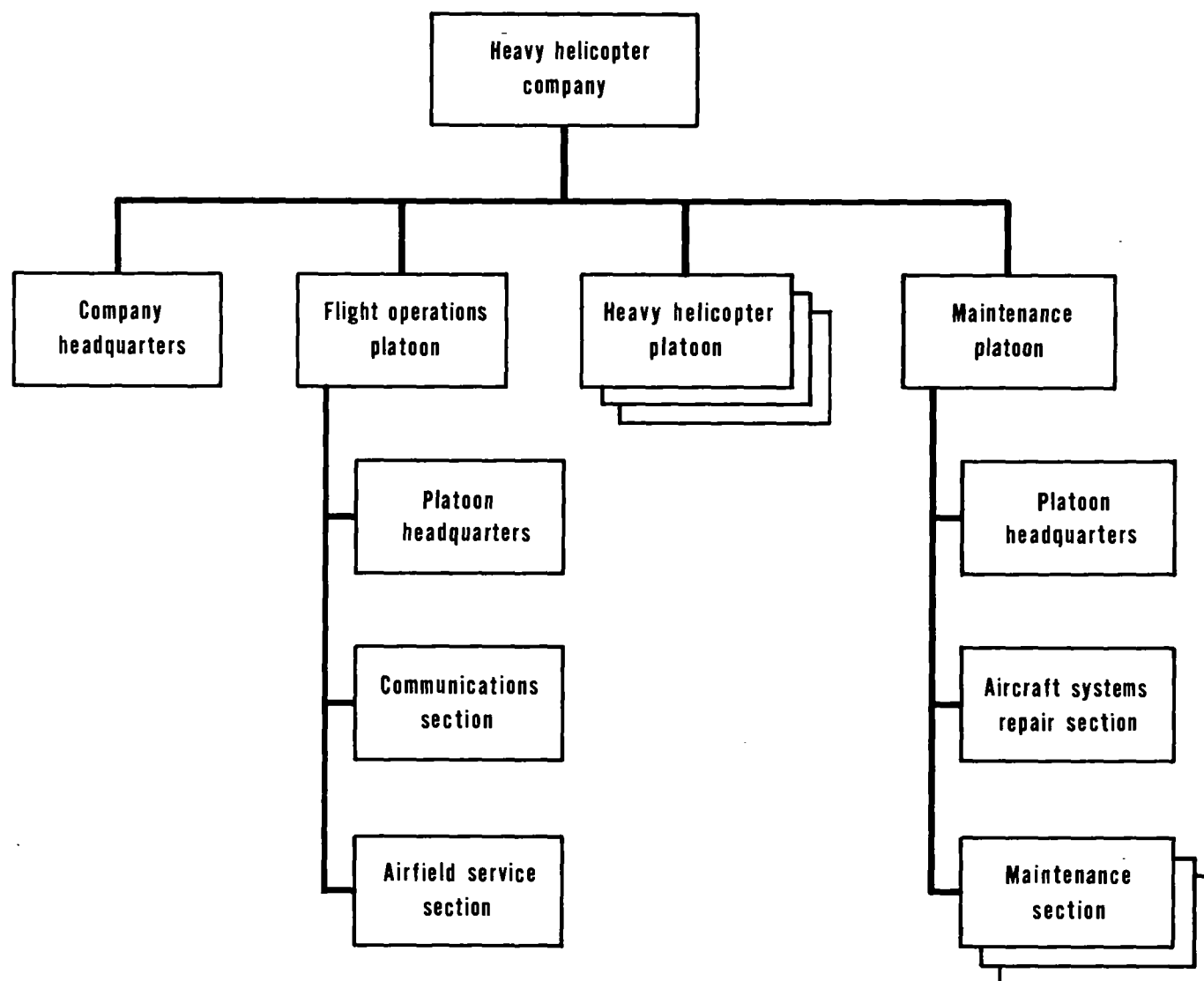


Figure 3-3. Heavy helicopter company.

also responsible for processing requests for aircraft and for assigning flight missions to the helicopter platoons in such a manner as to insure the most efficient use of all assigned helicopters and flight personnel. A noncommissioned officer (NCO) flight operations chief, with sufficient enlisted personnel to operate on a 24-hour basis, supervises the installation, operation, and maintenance of the airfield operations center; assists aviation personnel in the preparation of flight plans; posts operations maps and charts; and files the latest flight, airfield, and weather information. A crew chief is provided for organizational maintenance of the utility helicopter assigned to the company. A clerk-typist is provided to type operations orders and reports and to maintain the records of personnel in flight status.

(b) *Communications section.* The communications section supervises and participates in the establishment, operation, and maintenance of the communications system of the company. This section contains the communications chief, radioteletypewriter team chief, and sufficient enlisted personnel to accomplish the mission.

(3) *Helicopter platoon.* Each of the two helicopter platoons contains a platoon headquarters and two helicopter sections. The two helicopter platoons provide the air transport capability of the company.

(a) *Platoon headquarters.* The platoon headquarters is comprised of a platoon commander, a platoon sergeant, and a light truck driver. The platoon commander is responsible for the efficient operation and maintenance of his platoon. He reports to the operations officer on the state of proficiency and training of the aviators. He assists the company commander and the operations officer in formulating plans for both routine and special missions involving his platoon.

(b) *Helicopter section.* Each of the two helicopter sections consists of a section commander, an assistant section commander, six rotary wing aviators, and four helicopter flight engineers. Each section is equipped with four CH-47 transport helicopters. The section commander is responsible to the platoon commander for the successful operation of the helicopter section. Section commanders insure that aviators performing missions are properly briefed on such aspects of operations as flight formation to be used, alternate plans, routes to be flown, weather, and communication frequency. Flight missions are assigned by the platoon commander or the section commander in coordination with the operations platoon headquarters.

(4) *Service platoon.* The service platoon consists of a platoon headquarters, an airfield service section, an aircraft systems repair section, and two maintenance sections. The platoon provides organizational maintenance of organic helicopters, vehicles, and allied equipment, and it provides airfield service, to include crash rescue service. Additionally, the service platoon provides direct support maintenance of assigned aircraft and avionics equipment.

(a) *Platoon headquarters.* The platoon headquarters includes a platoon commander, helicopter repair technician, platoon sergeant, motor sergeant, helicopter technical inspectors, parts specialists, wheeled vehicle mechanics, and sufficient enlisted personnel to accomplish the mission. The platoon headquarters supervises, inspects, and provides administrative support for helicopter maintenance. The platoon commander keeps the operations officer informed of aircraft availability and estimates of future aircraft availability. The platoon headquarters also provides personnel to perform organizational maintenance on assigned vehicles and allied equipment.

(b) *Airfield service section.* The airfield service section consists of a section chief and sufficient personnel to provide ground crash rescue service, refueling service, parking and mooring service, and general assistance to helicopters using the heliport. This section normally is under the control of the unit operations officer.

(c) *Aircraft systems repair section.* The aircraft systems repair section consists of a section chief and sufficient helicopter and avionics repairmen to perform direct support maintenance on the helicopters authorized the unit.

(d) *Maintenance section.* Each of the two maintenance sections consists of a maintenance supervisor and sufficient helicopter repairmen to accomplish the section's mission. The maintenance section performs organizational maintenance on assigned aircraft. It is desirable for the two maintenance sections to operate at the company heliport as an integral unit since this is a more efficient operation. However, each maintenance section is equipped so that it can accompany and support a helicopter platoon of eight CH-47 helicopters when detached from the company for a short period.

f. Concept of Employment.

(1) An assault support helicopter company may be employed as part of a support command transportation system for a TASCOM, FASCOM, COSCOM, subordinate unified or military assist-

ance command, or independent force by providing airlift during combat service support operations. When the magnitude of the airlift requires the employment of several helicopter companies, command and control will be exercised through a combat aviation battalion. The appropriate commander may direct that the assault support helicopter company be used to provide combat support for the tactical forces. During such periods, the company will be under the control of the supported tactical unit for employment as needed.

(2) Airlift missions performed by the assault support helicopter company normally will be performed within a radius of action of approximately 100 nautical miles and usually will be in areas where there are no fixed wing landing strips. The company receives daily mission assignments from the combat aviation battalion for scheduled or unscheduled transport of personnel and cargo. When fixed wing airfields are available the most effective use of all airlift would be to employ the fixed wing aircraft as far forward as security and operational conditions will permit. This allows the helicopters to operate over a shorter radius, thereby increasing their effectiveness.

(3) The assault support helicopter company can be employed in day and night operations and during periods of inclement weather. However, the effectiveness of the company is reduced during darkness and during inclement weather.

(4) The assault support helicopter company is employed in support of airlift requirements, depending on its capability. The company provides its higher headquarters, generally the combat aviation battalion, with a daily report of aircraft availability. When the company is being employed as part of a support command transportation system, it is essential that a realistic availability factor be established and maintained so that commitments for movement of personnel and cargo by airlift can be properly scheduled on a sustained basis. Assault support helicopter companies can normally provide 60 percent of assigned helicopters on a daily basis. However, this percentage may vary depending on status of training, maintenance, parts support, geographical area of operations, and other factors that affect employment. The important point is that the company should attain an acceptable percentage of available helicopters and maintain that percentage on a daily basis so that its capability can be depended on over an extended time by committing fewer than the total number of aircraft "mission ready" and maintaining a reserve of flyable aircraft.

(5) When mission assignments are received

by the company, assigned personnel are designated as liaison officers. The purpose of the liaison officer is to effect prompt liaison with the unit to be supported to assure that adequate technical advice and assistance are provided. The liaison officer is the contact between the assault support helicopter company and the supported unit and plays an important role in insuring that the transport helicopters are properly employed with a reasonable degree of safety. A utility helicopter is organic to the company for use in providing rapid transportation for the company personnel who are designated as liaison officers. The contents of appendixes B and C should be brought to the attention of the supported unit.

3-6. Heavy Helicopter Company

a. Mission. The mission of the heavy helicopter company is to provide combat service support airlift for movement of heavy supplies, vehicles, aircraft, and equipment and, as directed, provide combat support airlift of combat units and air supply of units engaged in combat operations. This mission includes but is not limited to—

(1) Airlift of heavy or outsize items of equipment, supplies, containers, vehicles, aircraft, weapons, and command post vans.

(2) Aerial evacuation of crashed and damaged aircraft.

(3) Airlift of heavy or outsize cargo loads between supply activities.

(4) Airlift of heavy or outsize cargo loads at transfer points between modes of transportation.

b. Assignment. The heavy helicopter company is assigned as required. It normally is assigned to a support command when providing heavy airlift during combat service support operations. It may also be assigned to a field army, corps, or independent force when its primary function is combat support. It is normally attached to a combat aviation battalion.

c. Capabilities. At full strength, the company has the following capabilities:

(1) Transport of personnel and heavy or outsize cargo loads during day, night, or limited visibility conditions.

(2) Airlift of nuclear munitions, nuclear weapons, and associated equipment and dangerous cargo. Air movement of cargo falling within these categories must comply with existing regulations and directives. (See TM's of the 55-1100-series for details of transporting dangerous cargo by helicopter.)

(3) Aerial resupply of forces in the combat zone.

(4) This company is 90 percent mobile using organic vehicles and helicopters.

d. Organic Heavy Lift Helicopter. The A or B model CH-54 Skycrane is the organic heavy lift helicopter assigned to the heavy helicopter company. It is a twin-turbine, single-main-rotor helicopter equipped with one antitorque tail rotor. It is capable of external transport of cargo loads. Provisions for the attachment of cargo or personnel vans are also incorporated. The fuselage is constructed in a crane configuration. The cockpit seats five persons, with side-by-side seating for the pilot and copilot. From an aft-facing position, a third pilot, called the aft pilot, is able to control the aircraft and its external loads during loading and unloading operations through a set of flight and cargo handling controls. The two remaining seats can be occupied by a flight engineer and one other individual. Table 3-1 gives characteristics of these aircraft.

e. Organization. The heavy helicopter company (fig 3-3) is organized with a company headquarters, a flight operations platoon, three heavy helicopter platoons, and a maintenance platoon. Details of the organization are contained in TOE 55-259. Duties of key personnel are discussed in detail in chapter 7.

(1) *Company headquarters.* The company headquarters provides command and administration for the company and supervision of operations, maintenance, supply, and training. The company headquarters contains the company commander, the first sergeant, mess steward, supply sergeant, motor sergeant, and sufficient other enlisted personnel to perform administrative, vehicular maintenance, unit supply, and mess functions of the company.

(2) *Flight operations platoon.* The flight operations platoon contains a platoon headquarters, a communications section, and an airfield service section. The flight operations platoon provides the personnel to operate the communications for the unit and to provide airfield service to include aircraft refueling and crash rescue.

(a) *Platoon headquarters.* The platoon headquarters includes a platoon commander who, with the assistance of a flight operations officer and the platoon sergeant, supervises the activities of the communications section and the airfield service section. The platoon commander provides the company commander with a continuous appraisal of the operations and training of the platoon.

He ensures that proper coordination is effected between the flight operations platoon, the maintenance platoon, and the three heavy helicopter platoons to provide efficient airlift support for assigned missions.

(b) *Communications section.* The communications section is responsible for the communications system of the unit and participates in the establishment, operation, and maintenance of the system. This section includes a communications chief and sufficient other enlisted personnel to perform its mission.

(c) *Airfield service section.* The airfield service section refuels assigned and transient helicopters and provides ground crash rescue service. The section consists of an airfield service chief and sufficient aircraft refueling and crash rescue enlisted personnel to execute the mission.

(3) *Heavy helicopter platoon.* There are three heavy helicopter platoons in the company. Each platoon has three CH-54 heavy lift helicopters assigned to perform the airlift mission of the company. A platoon includes a platoon commander, eight helicopter pilots, three flight engineers, and a light vehicle driver. The number of rated aviators permits each heavy lift helicopter to be operated with a pilot, a copilot, and an aft pilot aboard. The platoon commander is responsible for control, supervision, and efficient operation of his platoon. He assists the company commander and the flight operations platoon commander in formulating plans for missions involving his platoon. He coordinates with the flight operations officer on the operational and training status of his platoon. The platoon commander ensures that the aviators assigned to specific missions are properly briefed and that liaison is promptly established with the supported units.

(4) *Maintenance platoon.* The maintenance platoon consists of a platoon headquarters, an aircraft systems repair section, and three maintenance sections. The platoon provides organizational and direct support maintenance and repair parts support to the organic heavy lift helicopters.

(a) *Platoon headquarters.* The platoon headquarters includes the platoon commander, aircraft maintenance technicians, platoon sergeant, technical inspectors, and sufficient enlisted personnel to perform the platoon's mission. The platoon commander acts in the capacity of the company maintenance officer. He is responsible to the commander for aircraft organizational and direct support maintenance and for the training of maintenance and aircraft parts specialists. He

advises the flight operations platoon on aircraft availability and makes estimates of future availability.

(b) *Aircraft systems repair section.* The aircraft systems repair section consists of a section chief and sufficient helicopter and avionics repairmen to perform direct support maintenance on the helicopters authorized the unit.

(c) *Maintenance section.* There are three maintenance sections in the maintenance platoon. Each maintenance section contains a maintenance supervisor and sufficient enlisted helicopter repairmen to perform the section's mission. Each maintenance section is organized and equipped to enable it to provide organizational maintenance for one heavy helicopter platoon. The most efficient use is obtained from the maintenance sec-

tions when they are operated as an integral unit, usually located at the base heliport.

f. Concept of Employment.

(1) A heavy helicopter company may be employed as part of a support command for a TASCOM, FASCOM, COSCOM, subordinate unified command, military assistance command, or independent force by providing airlift of heavy loads during combat service support operations. The heavy helicopter company may also be employed in combat support operations. In such cases the company, or elements of the company, will support the appropriate tactical unit as needed.

(2) The design and capability of the helicopters that are organic to the heavy helicopter company make this unit more responsive to the airlift

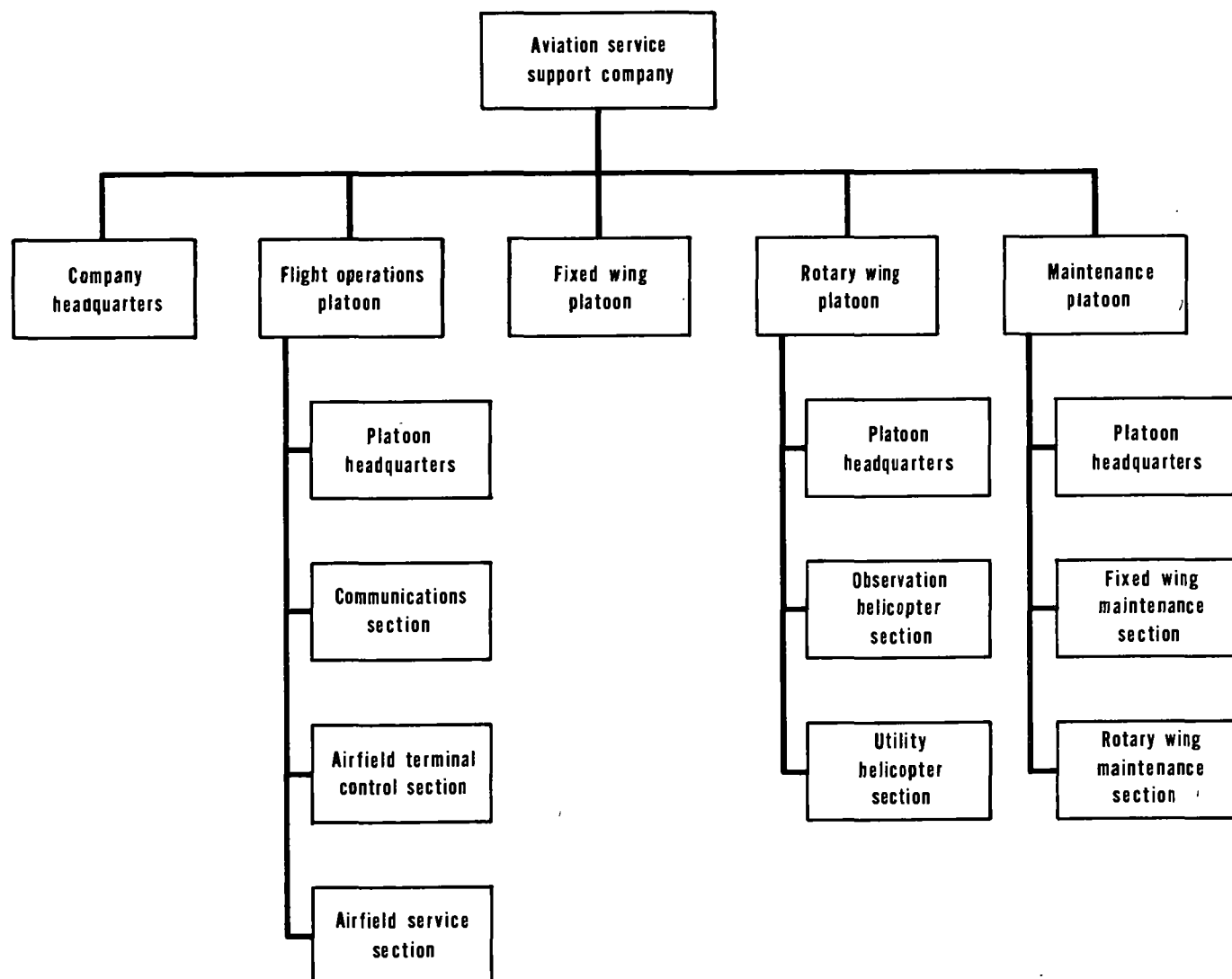


Figure 3-4. Aviation service support company.

of heavy or outsize cargo loads. It is intended that the company will be employed for the airlift of heavy or outsize equipment, supplies, vehicles, containers, weapons, and aircraft. When equipped with a detachable pod, the helicopters of the company can provide supplemental air movement of troops and casualties. The capability of the company should not be dissipated in supporting missions that can be performed by assault support helicopter companies.

(3) The company provides its higher headquarters, generally the combat aviation battalion, with a daily report of aircraft availability. Mission assignments normally are received by the company on a daily basis. While the heavy helicopter company is capable of providing support for scheduled airlift operations along air lines of communication, such employment is the exception rather than the norm. Typical operations employing helicopters of the heavy helicopter company will be airlift of containers, of crashed or damaged aircraft to repair sites, of heavy or outsize cargo loads between supply activities, of heavy or outsize cargo across terrain barriers, and of heavy or outsize cargo loads at transfer points between modes of transportation.

(4) The heavy helicopter company can be employed for the discharge of cargo vessels and container ships and subsequent movement of cargo over the shore. This method of lighterage has had limited testing to date and should be used only after all aspects of the operations are fully considered. Based on studies and tests, helicopters perform effectively in a lighterage role when used in conjunction with specially designed ships (container ships) suitable for this means of discharge. Extreme caution must be exercised when helicopters are used to discharge conventional cargo vessels. The superstructure and rigging of the ships present a safety hazard and operations of this nature should be attempted by only the most experienced flightcrews.

3-7. Aviation Service Support Company

a. Mission. The mission of the aviation service support company is to provide administrative service airlift within a field army or a communications zone. This mission includes—

- (1) Rapid air transport of commanders and staffs.
- (2) Air movement of small groups of personnel and high priority items.
- (3) Aircraft support for aerial radiological

survey, observation, and reconnaissance in support of rear area protection operations.

(4) Airlift for command, control, liaison, and courier service.

b. Assignment. The aviation service support company is normally assigned to a TASCOT or a FASCOT. It may also be assigned to other commands as required. When the company is assigned to a TASCOT, it is attached to a combat aviation battalion (TOE 1-256) of the transportation command. When the company is assigned to a FASCOT, it is attached to the combat aviation battalion (TOE 1-256) of the transportation brigade. When the company is authorized in other commands, it is normally attached to the senior transportation organization.

c. Capabilities. At full strength the company has the following capabilities:

- (1) Establishes and operates a base airfield with necessary communications and air traffic control facilities for visual and instrument flight operations.
- (2) Provides rapid air transport of personnel and high priority items during day and night operations and in periods of inclement weather.
- (3) Provides local motor transport taxi service for general officers, senior commanders, and other personnel who use the aviation services.

d. Organic Aircraft. The company is provided with two types of helicopters and one type of fixed wing aircraft to perform its flying mission. The OH-6 Cayuse or OH-58 Kiowa is the observation type helicopter and the UH-1D or UH-1H is the utility type helicopter authorized the company. The U-8F Seminole or U-21 Ute is the fixed wing type aircraft authorized. Characteristics of each type of aircraft are included in table 3-1.

e. Description of Aircraft.

- (1) The OH-6 Cayuse is a single-engine, four-place observation helicopter designed for visual observation, target acquisition, reconnaissance, and rapid transport for command, control, liaison, and courier service. It is powered by a free turbine engine and has a single main rotor and one antitorque rotor. The main rotor can be folded for ease of storage or when the helicopter is being air transported. The OH-6 incorporates dual flight controls, with the secondary cyclic control removable. Flight instruments provide a capability for day or night operations under marginal visibility conditions. The space behind the pilot and copilot seats is referred to as the cargo

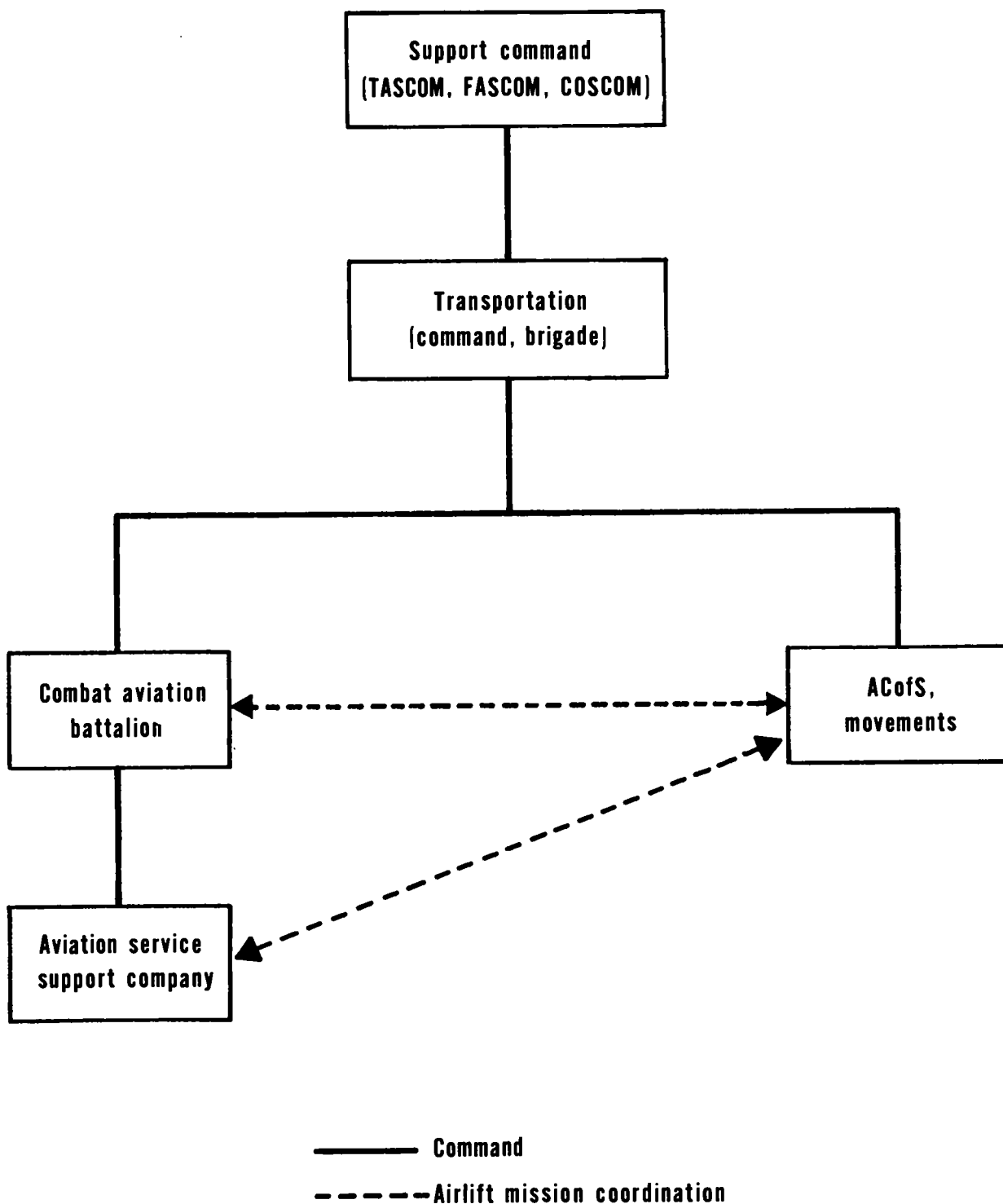


Figure 3-5. Command and coordination for administrative service airlift.

area and contains troop-type seats which are stowable when not in use.

(2) The OH-58 Kiowa is a single-engine, four-place observation helicopter designed for use in performing command and control, reconnaissance, visual observation, and target acquisition

missions. It is powered by a free turbine engine and has a single main rotor and one antitorque rotor. The OH-58 has dual controls and the flight instruments are the minimum essential to safely conduct day and night visual operations.

(3) The UH-1 Iroquois is a utility type,

compact helicopter having a low silhouette for operations in a combat environment. Missions performed by this helicopter include transportation of personnel, equipment, and supplies, and it is the helicopter of choice for medical evacuation. The helicopter is equipped for day and night flight and for instrument flight. It has a single main rotor, a single antitorque rotor, and an all-metal fuselage. It has sliding doors along each side of the cabin area to allow simplified straight-through loading from either side or from both sides simultaneously. The copilot's controls are removable, providing space for an extra passenger.

(4) The U-8F Seminole utility airplane provides rapid transport of personnel and of limited quantities of high priority cargo. It is a low-wing monoplane powered by two supercharged, fuel-injection engines. The airplane has sufficient instrumentation, navigation, and deicing equipment installed to permit operations in instrument flight conditions. The interior has a separate crew and passenger compartment. The crew compartment, arranged for a pilot and copilot, is equipped with dual controls. It is separated from the passenger compartment by sliding doors. The passenger compartment has five airline-type seats which can be removed to convert the aircraft into a light cargo carrier. There is a 300-pound baggage compartment aft of the passenger compartment. Access to the cabin is through a door located on the left side of the fuselage aft of the wing which incorporates stair-type steps for ease of entry and exit.

(5) The U-21 Ute is similar to the U-8F in instrumentation, general configuration, and use except that the U-21 is powered by two turbine engines and has a seating capacity for 10 passengers.

f. Organization. The aviation service support company (fig 3-4) is organized with a company headquarters, a flight operations platoon, a fixed wing platoon, a rotary wing platoon, and a maintenance platoon. Details of the organization are contained in TOE 1-407.

(1) *Company headquarters.* The company headquarters provides command and administration for the company and supervision of operations, maintenance, supply, and training. It contains the company commander, executive officer, first sergeant, mess steward, supply sergeant, and sufficient personnel to perform the administration, unit supply, and mess functions of the company. The position of an executive officer is included because of the highly specialized mission of

the company and its relationship to a support command headquarters. In routine operations, this unit will provide air transportation to general officers, senior commanders, and senior staff members. The executive officer is required to assist the company commander in providing continuous supervision of responsive air transport service. He will supervise unit administration and may serve as the unit aviation safety officer and as an aviator in either fixed or rotary wing operations. Personnel administration is provided to the company by a servicing personnel activity.

(2) *Flight operations platoon.* The flight operations platoon contains the platoon headquarters, the communications section, the airfield terminal control section, and the airfield service section. Personnel of the platoon provide the technical skills required to establish and operate the base airfield and its associated services.

(a) *Platoon headquarters.* The flight operations platoon headquarters is the focal point of the company's activities, being located at the base airfield operations office and providing terminal services for flightcrews and incoming and outgoing passengers. It includes a flight operations officer, who is responsible for the overall operations of the platoon to include coordination of flight missions, air traffic control, and airfield services. He is also responsible for processing requests for aircraft and for assigning flight missions to the fixed and rotary wing platoons in such a manner as to ensure the most efficient use of aircraft and flight personnel. He is assisted by an NCO flight operations chief and sufficient enlisted personnel to operate the facilities on a 24-hour basis; to assist flight personnel in preparing and filing flight plans; to post operations maps and charts; to maintain the latest flight, airfield, and weather information; and to maintain required records of personnel on flight status. Three light vehicle drivers are provided to drive three 1/4-ton trucks authorized for taxi service in and around the airfield and to local destinations.

(b) *Communications section.* This section includes an NCO communications chief and sufficient enlisted personnel to establish and maintain wire and radio nets in the company and to advise the company commander on communication matters. Personnel operate the radioteletypewriter set that is used for filing flight plans and for obtaining current weather and other associated flight information.

(c) *Airfield terminal control section.* This section includes personnel who operate the control tower and provide traffic control on, and in the

area of, the base airfield. Landing control personnel of the section operate authorized radar equipment that enables the base to maintain a 24-hour operation even during inclement weather.

(d) *Airfield service section.* This section consists of an airfield service supervisor and sufficient personnel to provide refueling service, parking and mooring service, ground crash and rescue service, and general assistance to transient aircraft using the base airfield.

(3) *Fixed wing platoon.* The fixed wing platoon contains a platoon leader or commander and necessary fixed wing pilots to support those flight requests where distance, time, and the availability of airfields make it advantageous to use multiengine fixed wing aircraft. The platoon commander is responsible for the efficient operation of the platoon. He reports to the flight operations officer on the proficiency and training of the assigned aviators. He assures that the current availability status of both aircraft and pilots is coordinated with the flight operations platoon. He assists the company commander and the flight operations officer in planning for both routine and special flight missions involving his platoon. Owing to the high percentage of senior officers using the aircraft of this platoon, pilots must be thoroughly familiar with their authority and responsibility during the execution of a flight to insure safe operation in all conditions encountered. The platoon sergeant supervises the work of the enlisted personnel assigned to the platoon.

(4) *Rotary wing platoon.* The rotary wing platoon contains a platoon headquarters, an observation helicopter section, and a utility helicopter section. The type of helicopters assigned to the platoon is based on a need for short range inter-headquarters helicopter service and for intrazone rapid transport helicopter service. The characteristics of the authorized helicopters permit operations into areas unsuited for fixed wing aircraft.

(a) *Platoon headquarters.* The functions and responsibilities of personnel assigned to the platoon headquarters are essentially the same as those indicated in (3) above.

(b) *Observation helicopter section.* There are five observation helicopters authorized the section. The section leader supervises the assigned personnel that include four aviators, a section sergeant, three crew chiefs, and a light truck driver. He insures that assigned missions are coordinated with users and that aviators are properly briefed on all aspects of the flight.

(c) *Utility helicopter section.* This section operates the 10 utility helicopters authorized the

company. The section leader supervises the assigned personnel that include 19 warrant officer aviators, a section sergeant, 10 crew chiefs, and a light truck driver.

(5) *Maintenance platoon.* This platoon consists of a platoon headquarters, a fixed wing maintenance section, and a rotary wing maintenance section. It provides organizational maintenance and repair parts for the company's aircraft, radios, avionics equipment, vehicles, and generators.

(a) *Platoon headquarters.* The platoon commander supervises the platoon's organizational maintenance activities, reports to the flight operations officer on the status of aircraft maintenance, and arranges for higher level maintenance support on aircraft and other equipment as required. For aircraft maintenance, he is assisted by a warrant officer aircraft repair technician. A repair parts specialist is authorized for requisitioning, stocking, and issuing repair parts and related technical supply items to mechanics and crew chiefs. Two powermen are authorized to maintain the unit's generators. In addition, the powermen provide a 24-hour-a-day operational capability for the two 5-kilowatt generators authorized to provide electrical supply to the radar set AN/TPN-8. One fixed wing and two rotary wing technical inspectors are assigned to the fixed wing and rotary wing maintenance sections to assure that organizational maintenance is performed in accordance with prescribed quality control standards. These inspectors also inspect aircraft repair parts that are received by the unit or are being shipped as unserviceables to a higher level maintenance activity. Avionics equipment and radar maintenance is performed by four avionics equipment mechanics and one GCA equipment repairman. A motor sergeant, three vehicle repairmen, and one helper maintain the company's vehicles.

(b) *Fixed wing maintenance section.* The section consists of a maintenance supervisor and sufficient fixed wing repairmen to perform organizational maintenance on the 10 aircraft assigned to the unit.

(c) *Rotary wing maintenance section.* The section is supervised by a maintenance supervisor, who has sufficient helicopter repairmen to provide organizational maintenance for the five observation and 10 utility helicopters assigned to the unit.

g. Concept of Employment.

(1) An aviation service support company is employed within a communications zone or a field

army area to provide administrative service airlift for the headquarters and subordinate elements of a support command.

(2) The number of companies employed depends on the specific administrative airlift requirements. Normally, two aviation service support companies are authorized in a TASCOT when the command is supporting an 8- to 12-division force. The companies are attached to a combat aviation battalion that is assigned to the TASCOT. Only one aviation service support company is authorized in a FASCOT that is supporting an 8- or 12-division force. The company is assigned to the FASCOT transportation brigade and normally will be attached to the combat aviation battalion. One company is also authorized in a COSCOM that is supporting a separate corps. The company is attached to a combat aviation battalion authorized in the COSCOM transportation brigade.

(3) The airlift resources of the aviation service support company are coordinated and controlled in accordance with the policies and procedures established by the ACS, movements, at TASCOT or FASCOT. Within each transportation command or brigade, an ACS, movements, exercises staff supervision over the operations of the transportation services. The administrative airlift service resources normally will not be controlled and coordinated by the MCC. Requests for administrative airlift service will normally be received and processed by the aviation battalion headquarters. Specific missions will be approved and scheduled based on available resources and in accordance with priorities established by the TASCOT or FASCOT commander. The aviation service support company provides the aviation battalion and the ACofS, movements, with the daily status of operational aircraft. This permits missions to be accepted, promptly approved, and scheduled according to available resources. Missions are routinely coordinated directly between the aviation service support company and the aviation battalion and the ACofS, movements, as indicated in figure 3-5. The operations are continually supervised and monitored by the combat aviation battalion and the ACofS, movements, and deviations from normal or routine procedures are coordinated between these elements.

(4) Organic aircraft of the company furnish a pooled airlift capability to support a variety of administrative airlift requirements. This pooled

capability allows economy in utilization and permits consolidation of individual missions to the maximum extent.

(5) The aircraft of the aviation service support company will normally be employed from a base airfield located in the vicinity of a support command headquarters. Flights will depart on a mission basis, providing pickup and delivery service at designated locations. Landing sites will be limited only by the capabilities of the aircraft and the requirement to ensure maximum safety for each flight. When a need exists for extended administrative service airlift at a particular location or in support of a specific subordinate unit of the support command, aircraft of the company may be employed from an alternate operating site for the duration of the required service. When it becomes necessary for the company to operate more than one airfield, additional terminal control, communications, and ground servicing personnel and equipment must be provided from TOE 29-500.

(6) Aircraft assigned to the company are employed for rapid point-to-point air transport of personnel and high priority items. These aircraft are also employed by the support command and its subordinate elements for such missions as road patrol, traffic control, aerial radiological survey, liaison, courier, observation, and reconnaissance in support of rear area protection operations. The assignment of both observation and utility helicopters and utility fixed wing aircraft provides the unit with considerable flexibility in supporting these missions. Determination of the specific type of aircraft to be employed for a particular mission depends on such factors as maneuverability of aircraft, distance to be flown, time available, weather, available landing facilities, number of passengers involved, and weight of cargo. Generally, the multi-engine fixed wing utility aircraft will be used to transport groups of personnel and high priority items over extended distances and where landing facilities suitable for fixed wing aircraft are available. These aircraft will also be used as a prime source of air transport for general officers and key staff personnel. The utility helicopters will provide essentially the same service except that flights will normally be over shorter distances. Both of the utility type aircraft can operate day and night in instrument weather conditions. The observation helicopter also has a day and night operational capability but has a limited instrument weather capability.

CHAPTER 4

COMBAT SERVICE SUPPORT OPERATIONS (STANAG's 3117, 3327, 3465, and 3468)

Section I. ARMY TRANSPORT AIRLIFT

4-1. General

The combat service support discussed in this manual is provided through a transportation organization that manages and coordinates the various modes of transportation. It must have a high degree of flexibility to permit necessary diversion, concentration, and allocation of transportation. Flexibility is particularly required under all types of tactical situations and operational environments. The desired integration of modes and flexibility of operations is attained through centralized direction and decentralized execution. Army combat service support air transport units are an integral part of a support command transportation service and provide considerable mobility toward the transportation effort when employed in combat service support operations.

4-2. Employment

Army combat service support air transport provides the field commander with highly mobile, rapid air movement that is capable of bypassing terrain barriers and manmade obstacles. These advantages enable aviation units to be employed in combat service support operations that cover a broad spectrum of situations.

a. Figure 4-1 depicts the employment of air transport units providing combat service support from a logistical base to a combat force such as a division or brigade that is operating in an underdeveloped area. Similar airlift is provided by Army combat service support air transport units when supporting forces which are engaged in a stability operational environment. This type of employment is characterized by the movement of personnel and cargo over extended distances, usually over pockets of resistance or insurgent controlled or dominated territory, with delivery being made as far forward as practical. Aircraft make daily deliveries to the combat forces, nor-

mally to airstrips and landing sites located within the division and brigade area. However, when feasible, loads may be delivered directly to subordinate units operating away from their base area. Maximum use will be made of scheduled deliveries to reduce stockage required in the forward area.

b. Figure 4-2 depicts the field army support command (FASCOM) air transport units providing combat service support to a type field army of 3 corps and 12 divisions. Ideally, the Army combat service support air transport units provide airlift of personnel and cargo from various pickup points in a support command to points as far forward as practical without the necessity of making transfer to another means of transportation. Combat service support air movements generally originate from loading sites located at or within the vicinity of Army terminals, Air Force terminals, general support activities, transfer points, or replacement activities. Combat service support air transport units also provide airlift for lateral shipments when necessary; an example of a typical lateral shipment is an air movement between an Air Force terminal and a general support activity, both located within a theater army support command (TASCOM) or FASCOM area.

c. In addition to the situations depicted in figures 4-1 and 4-2, Army combat service support air transport units support different mixes of combat forces operating under varied tactical situations. As an example, elements of the combat aviation battalion may provide combat service support for a separate corps, brigade, or task force or for the Military Assistance Advisory Group (MAAG) advisory detachments or special forces detachments.

4-3. Categories of Air Movements

Combat service support air movements are categorized as scheduled or nonscheduled.

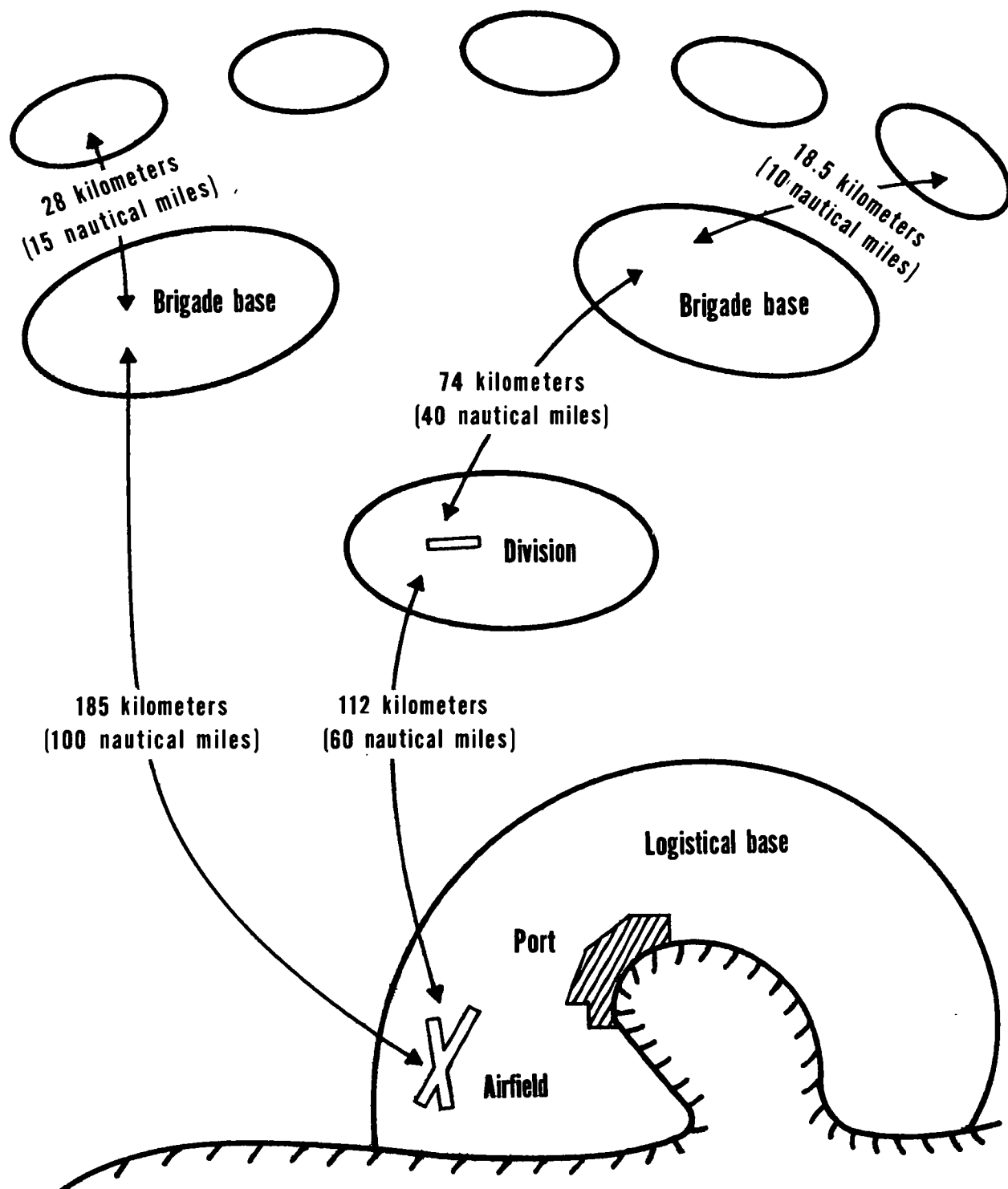


Figure 4-1. Combat service support from a logistical base to a combat force operating in an underdeveloped area.

a. Scheduled air movements constitute the routine air transport service that is operated in support of planned or programed requirements. From the standpoint of efficient use, it is most desirable to schedule air movements since requirements can then be precisely matched to the airlift capability

of the Army air transport units. The allocation of airlift to support scheduled air movements is based on priorities established by the appropriate logistical support commander and is processed through a movement control center (MCC). For details of transportation movements services,

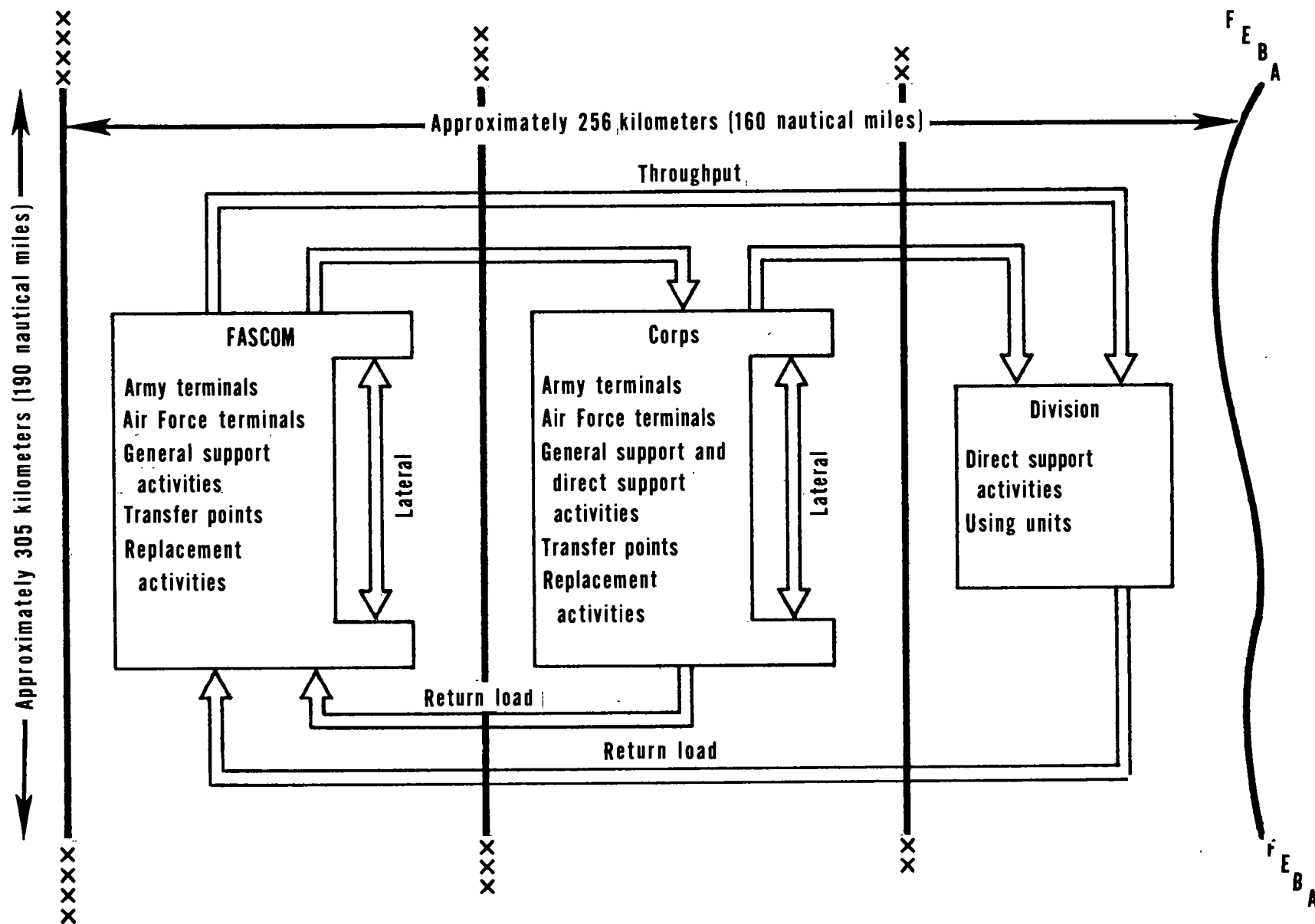


Figure 4-2. Movement by FASCOM combat service support air transport in support of a 12-division force.

refer to FM 55-10. Scheduled air movements are generally, but not always, performed over Army air lines of communication (ALOC). ALOC are explained in detail in paragraphs 4-4 through 4-8. When combat service support Army transport aircraft are making scheduled air movements into forward areas, caution should be exercised that flights are not established to arrive and depart each day at a particular operating site according to a timetable. The repetitive arrival and departure of aircraft at fixed times can alert an enemy or an insurgent tactical force and make the flight vulnerable to attack.

b. Nonscheduled air movements are generated by daily actions that cannot be determined in advance and therefore cannot be acted on in sufficient time to be included in a movements program

or plan. Unexpected requirements for resupply movements, movement of additional replacements, or a diversion of other modes of transportation are typical situations that generate nonscheduled air movements. Although the optimum situation would be to have all transportation requests scheduled in advance, such a condition is not realistic. In fact, an inherent characteristic of nonscheduled movements is that such requirements increase as the combat service support effort moves toward the division area. Nonscheduled air movements are processed through an MCC and are coordinated by the center and its field offices with the appropriate aviation unit. Priorities for nonscheduled air movements are established by the logistical support commander. Nonscheduled air movements may or may not be performed over Army ALOC.

Section II. ARMY AIR LINES OF COMMUNICATION

4-4. Concept

a. It is necessary that the Army's transportation system be organized and employed to keep pace with the mobility requirements of the combat forces. Under certain conditions, this will require Army combat service support air transport to operate over Army air lines of communication (ALOC). ALOC's connect an operating military force with a base of operations. The primary difference between ground and air lines of communication is that ALOC's use aircraft as the means of movement along the route.

b. Air movement of cargo and personnel throughout a theater of operations by Air Force intratheater airlift will be exploited to the maximum consistent with the tactical situation, availability of suitable landing areas, and the ability of recipients to receive the quantity of cargo delivered. Army operated ALOC will be established as an integral part of the Army's combat service support to the combat forces.

c. Army ALOC's are under the operational control of the Army. Basically an Army ALOC can be divided into two separate functioning areas: the terminal area, which includes departure and destination bases, and the interconnecting area or the air route between the terminal areas. Points of departure and destination vary widely in description and capacity, ranging from relatively sophisticated air terminals to rudimentary landing sites.

d. Air Force terminals located within the logistical base or field army area and used by Air

Force aircraft as terminals for intratheater ALOC will be controlled by the Air Force. The Army may also use Air Force controlled terminal facilities in the field army area.

e. Army terminals will be developed at advantageous geographical locations to move tonnages forward to support units, supply points, and division or brigade bases of operation. Airfields in the division area are under the operational control of the division commander.

f. ALOC include an air transport element, which may be an aviation battalion or company, terminal elements, and necessary movements management personnel. In addition, other supporting elements are attached as necessary to meet the requirements of the force supported.

g. The key to successful ALOC operation is the coordination and timing developed among aviation units, shippers, receivers, and terminal personnel. This coordination is generally provided by a movement control center (MCC) and its terminal movement control team (team LE, TOE 55-580). The transportation MCC is responsible for ensuring that available transportation resources are used in the most efficient manner to support airlift requirements in the priority established by the appropriate commander. The center does the planning necessary to balance the airlift capability provided by the combat service support air transport units against the requirements of the supported units. In ALOC operations, terminal movement control teams are responsible for

maintaining a continuous and orderly flow of traffic into and out of the airlift system. This includes both scheduled and nonscheduled air movements.

h. Army transport helicopter companies provide efficient air movement of personnel and cargo when operating along ALOC's. An ALOC supporting an airmobile division should be capable of handling the division's total daily tonnage on a sustained basis. To maintain the flexibility and responsiveness of an airlift system supporting an airmobile division, it may be necessary to relocate existing terminals and to establish new terminal sites commensurate with a frequently changing tactical situation. Aircraft generally make daily deliveries from a support command area to a division base of operations in furtherance of the throughput concept (para 4-8i). For an explanation of throughput, refer to FM 55-10.

4-5. General Responsibilities

a. Air Force. The theater air commander is responsible for all terminal operations in support of theater Air Force air lines of communication. The Army may assist in the operation of Air Force air terminals in accordance with local agreements. For detailed information concerning local agreements, see AR 59-106.

b. Army.

(1) The theater army commander is responsible for the operation of Army ALOC's, which are a part of the theater transportation service.

(2) The appropriate support commander is responsible for furnishing combat service support to the combat forces. An essential part of this responsibility is the conduct of ALOC operations.

4-6. Combat Service Support Aviation Unit Operations

a. General. Rapid and dependable combat service support air movement along Army ALOC's is achieved only when close coordination and efficient working arrangements exist between the aviation units and other elements involved in the operation. Combat service support aviation units employed in ALOC operations are responsible for providing the airlift to support scheduled and nonscheduled air movements between departure and destination bases. In addition, these units normally provide airfield operation support at Army air terminals.

b. Commander's Responsibilities. The senior Army combat service support air transport com-

mander (battalion or company) is responsible to the appropriate support commander for the efficient employment of aviation units engaged in ALOC operations. In addition, he has the following responsibilities:

(1) Supervises and controls the operations of subordinate aviation units.

(2) Establishes policies for ALOC flight operations.

(3) Coordinates with other headquarters or commands concerning the technical aspects of ALOC operations.

(4) Assures compliance with policies, directives, and regulations affecting flight operations along air routes and corridors.

c. Organization. The type of air transport organization committed to provide combat service support along an Army ALOC is influenced by the tactical situation and the logistical support requirements. Aviation units described in chapter 3 are used to provide the necessary airlift.

d. Employment. The employment of aviation units in ALOC operations is directly affected by the following factors: commodity to be airlifted, quantity involved, aircraft availability, distance between loading and unloading sites, and whether or not there is to be a recurring airlift requirement. The senior combat service support air transport commander determines, on the basis of an analysis of these factors, the most suitable composition of aviation units and where they should be located to provide the most effective ALOC support.

e. Operational Considerations. The following factors influence the airlift operations of air transport units providing ALOC support.

(1) *Type, weight, and cube of cargo.* The characteristics of the cargo and the quantity to be airlifted are determining factors in the type and number of aircraft required. Helicopters can be used to airlift cargo either internally or externally. Determination of type of loading (external or internal) will be based on several variables. Frequently, external loading will be dictated because the load is too bulky to be loaded internally. When the size of the load permits a choice, a factor to be considered is security. When it is desirable to prevent the load from being seen or recognized while in flight, it should be loaded internally. Time is another determining factor. Properly prepared sling loads may be hooked up and unloaded more quickly than loads that must be loaded and unloaded internally. Frequently, a

combination of both methods will be desirable. For details of external air transport procedures, refer to TM's 55-450-8, 55-450-11, and 55-450-12; for internal air transport procedures, refer to TM 55-450-15.

(2) *Location of loading and unloading sites.* Maximum effectiveness in ALOC operations is obtained when loading and unloading sites are located as close as practical to the shipper and the receiver. Factors to be considered in site locations are relative freedom from obstacles; nearness to dominating terrain; good road nets; cover and concealment, particularly at forward landing sites; and ease of identification from the air.

(3) *Pickup and delivery times.* Effective ALOC operations depend on precise timing and prompt support by participating units. Timing affects aircraft flights during normal operations performed along a monitored air route in accordance with a planned flight schedule. During ground operations, timing affects aircraft use because the time taken to load and unload constitutes a segment of the total turnaround time for each aircraft mission.

(4) *Airfield service.* Broadly stated, the more extensive the ALOC operation, the greater the amount of airfield service needed by the combat service support air transport units. Airfield service must be provided promptly so that aircraft can operate in accordance with established flight schedules.

(5) *Air traffic control procedures and navigational aids.* Army ALOC operations provide airlift on an around-the-clock basis and during inclement weather. When ALOC movements extend from a support command into the forward areas of the divisions or corps, aircraft normally operate along air routes or corridors that are controlled and monitored through the Army air traffic regulation system. ALOC operations are closely tied into the Army air traffic regulation system because normally each individual flight depends on information provided through this system. A detailed explanation of the operational procedures of the regulation system is provided in paragraph 4-7.

4-7. Army Air Traffic Regulation System

a. Joint use of airspace within the combat zone has dictated a requirement for stringent control regulations. The joint force commander must establish measures to govern all types of airspace operations, to preclude interference in mission accomplishment and to establish mission priorities. These measures will include control of the

employment of aircraft and air defense means which will not impede the employment and coordination of fire support and still provide adequate safety requirements and a means of identifying friendly and hostile aircraft.

b. The Army commander will establish an Army air traffic regulation system based on joint force regulations. This system will provide a means of handling air traffic within the portions of the airspace designated as an Army responsibility. Control of airspace by the Army will be governed by joint Army-Air Force agreements and approved by the joint commander. The Army air traffic regulation system is established and coordinated by an aviation air traffic control company under the staff supervision of the field army aviation officer. The company is capable of regulating air traffic under instrument flight rules, establishing navigational aids, providing air warning, and furnishing other in-flight assistance to aircraft such as weather advisories and pertinent air route information. The aviation air traffic control company and its organic elements provide this service throughout the field army area.

c. Air routes are established to facilitate and control the passage of aircraft between two points, usually between major terminal areas and Army airfield locations. Air traffic control facilities are installed as dictated by aircraft density rather than by tactical boundaries. Air routes or corridors will extend as far forward as the division instrumented airfield. This provides an all-weather capability as far forward as the division base. For operations where an airmobile division requires continuous combat service support airlift or where a division operating in an undeveloped area requires sustained combat service support airlift, the division commander may extend Army air traffic regulation support farther forward by installation of instrumented airfields at brigade bases.

d. Under visual flight rules, aircraft are operated in accordance with the clearance and control procedures prescribed by the component commanders within the overall policies established by the joint force commander. These aircraft may use established air routes or corridors or may fly direct from one point to another. The aviation air traffic control company can furnish such assistance as navigational aids, flight route information, weather information, and air warning service.

e. For further details of Army air traffic operations, refer to FM 1-60.

4-8. Army Air Terminals

a. General. Army air terminals are a part of ALOC operations. An air terminal is an installation provided with the facilities for loading and unloading aircraft and for in-transit handling of personnel and cargo. Terminals are located at or near Air Force bases, Army supply points, replacement activities, and supported units. Specific locations are determined through coordination among the commands concerned and should not duplicate Air Force routes and facilities. Terminals are established where cargo and personnel airlift requirements exist and are relocated as the tactical situation changes and units are displaced.

b. Organization.

(1) Army air terminals vary greatly in size, appearance, organization, complexity, and physical features. Existing airfields, airstrips, and aircraft operating sites will be used whenever possible. A minimum of construction will be performed.

(2) Facilities at the air terminal may include a landing strip, parking area, fuel storage area, staging area, temporary cargo holding area, terminal service area, maintenance area, and crash rescue equipment and medical facilities.

(3) The organizational structure of each Army air terminal depends on the magnitude of operations performed at the particular installation. Supporting units vary from groups, battalions, or companies down to platoons or elements of a unit. Sufficient units and personnel are provided to perform the following functions: airfield operations and aircraft support, terminal support operations, and movements management. Army air terminals located within a support command normally are manned with personnel from Army air transport units, terminal transfer companies, an MCC, and required additional support elements. Air terminals located within a division area are normally organized and staffed with units and personnel organic to the division. However, additional personnel may be attached as required.

c. Responsibilities. An air terminal commander will be designated by the appropriate support commander or his representative. The air terminal commander will normally be the senior officer at the installation. His staff is composed of representatives from units or elements assigned to the terminal to perform the various functions necessary in air terminal operations. The primary purpose of the staff is to coordinate the activities of the various units to ensure orderly and efficient

operations. Each commander of a unit or element at the terminal is responsible for the performance of his particular organization. The air terminal commander will designate a unit to be responsible for messing and billeting of personnel. However, if the size of the force required to operate the terminal exceeds the normal support capability of assigned units, the area commander may provide housekeeping forces to furnish administrative support.

d. Airfield Operations and Aircraft Support.

(1) Normally, airfield operations and aircraft support at Army air terminals located within a support command area are provided by Army combat service support air transport units. For this reason, it is advantageous to position aviation units at airfields, airstrips, or landing sites that are at or centrally located to supply activities and other users of Army combat service support transport airlift. At air terminals located within a division area, airfield operations and aircraft support are provided by personnel organic to division aviation units.

(2) Airfield operations and aircraft support include establishment and operation of the following:

- (a) Airfield operations office.
- (b) Control tower.
- (c) Air traffic control.
- (d) Air terminal guidance control.
- (e) Aircraft parking facilities.
- (f) POL (petroleum, oil, and lubricants) facilities.
- (g) Fire and ground crash rescue service.
- (h) Transient aircraft service.
- (i) Maintenance.

e. Terminal Support Operations. Terminal support operations include those cargo handling functions that involve loading and unloading air and surface vehicles, temporary cargo holding, documentation, and selection and arrangement of cargo into loads. In a support command, these functions are performed by terminal transfer companies or elements of such units. FM 55-60 gives a comprehensive explanation of the organization and operations of a transportation terminal transfer company (TOE 55-118). At division level, the division support command is responsible for terminal support operations. Normally, these functions are performed by the supply and transport battalion, but elements of a terminal transfer company may be attached to provide assistance for limited periods. To obtain a rapid and orderly flow of traffic, terminal support elements must

have the capability to clear an air terminal at a rate equal to the rate of incoming traffic. In the handling of cargo, the ideal situation is a perfect balance in which cargo moves into and out of the terminal at the same rate. However, this seldom occurs and some facilities must be available to handle cargo that requires temporary holding. Situations that may require temporary holding at Army air terminals are as follows: unexpected redeployment of transport aircraft to a combat support role; adverse weather resulting in cancellation of scheduled flights; inability of terminal support elements or forward support units to process the cargo at a pace suitable to a steady flow through the air terminal; and diversions of flights due to maintenance, weather, or enemy action.

f. Movements Management. An air terminal movement control team (team LE, TOE 55-580) is located at an air terminal when operations are large enough to warrant a full-time office. Otherwise the terminal will be serviced by a TMO located in the vicinity. The air terminal movement control team coordinates and manages the flow of cargo and personnel through Army and Air Force air terminals. In addition, the team serves as the point of contact between the transportation service and its users. In performing these missions, teams supporting air terminals perform the following duties:

- (1) Call personnel and cargo forward to meet regularly scheduled flights or nonscheduled airlift.
- (2) Assign air release numbers for cargo and personnel movements.
- (3) Arrange for the clearance of cargo and personnel from air terminals.
- (4) Insure that cargo moves in accordance with established priorities.
- (5) Maintain liaison with other elements performing air terminal functions and with consignors and consignees.
- (6) Verify that reports of shipments (REP-SHIPS) are sent to destination TMO's.

g. Additional Support Elements. The following support elements may be attached to an Army air terminal as required:

- (1) Air Force weather detachments to provide accurate, up-to-date flight weather reports and other pertinent meteorological information.
- (2) Security forces and air defense elements to provide defense. Normally, these elements will be a part of the rear area protection and area damage control forces.

(3) Engineer elements for construction and repair of the airfield, storage areas, and facilities.

(4) Medical elements to provide the terminal with medical facilities, to serve as an area medical facility, and to support casualty evacuation flights; also, teams RC and RD, TOE 8-660, helicopter ambulance air crash rescue detachments of the medical brigade, field army support command (FASCOM), to furnish aeromedical air crash rescue service.

(5) Signal elements to augment the avionics support of the airfield, to assist in the maintenance of the communications net, and to provide the terminal commander with technical advice on communication matters.

(6) Transportation elements to furnish additional drayage capability, to participate in local or short haul operations, and to augment the lines of communication.

h. Documentation.

(1) Cargo moving through air terminals is documented in accordance with DOD Regulation 4500.32-R. The basic document for all cargo movements under these procedures is the transportation control and movement document (TCMD) (DD Form 1384), a multipurpose form which can be prepared manually or mechanically as a punchcard. The manual version of DD Form 1384 is a seven-part document, which is originated by the shipper for each transportation shipment unit and which accompanies the cargo to the ultimate consignee. As a general procedure, Army combat service support air transport personnel transporting cargo will be presented an envelope containing the proper documentation in sufficient copies to move the cargo from origin to destination. The aircraft commander assumes responsibility for the documents. If the aircraft lands and discharges the cargo at an intermediate air terminal or airfield because of weather, mechanical difficulties, or a diversion in flight, the aircraft commander notifies the movement control team at the air terminal of origin that the shipment has been diverted and requests disposition instructions. Documentation accompanies the cargo to the air terminal or airfield of destination. When the cargo reaches destination, the documents are disposed of according to established procedures. In addition, a copy of the documentation is returned to the air terminal of origin, where it is retained as a record of the completion of the shipment.

(2) Personnel group movements are flight-manifested by replacement activities or staging

area elements, direct support personnel elements (normally a personnel service company), or the combat units. Individual personnel movements are flight-manifested by air transport operations personnel or aircraft crew members.

i. Throughput Distribution. Throughput distribution, which refers to shipments that bypass intermediate supply installations, is used in air movements whenever possible. Transshipment may be required, particularly in a corps or division area, when incoming cargo may arrive at a destination base aboard fixed wing aircraft and then be transferred to helicopters for unit distribution. While some transshipment cannot be avoided, repackaging is minimized since supplies are palletized, containerized, and coded to conform to the needs of individual units. When unit distribution is made by helicopter, cargo is normally air transported externally. For details of external air transport procedures refer to TM's 55-450-8, 55-450-11, and 55-450-12.

j. Security.

(1) *General.* Defense requirements of Army air terminals will vary greatly in scope and will be governed by a number of factors which may

vary daily. Some of these factors are as follows: proximity to the forward edge of the battle area, nature and types of terrain, enemy surveillance capability, fluidity of combat operations, degree of air superiority, size and importance of the terminal, degree of permanency of the terminal, and friendliness or hostility of the local civil populace.

(2) *Local defense.* Local defense is primarily defense against ground attack from guerrilla forces and infiltrating enemy troops operating in rear areas. Local security forces should be of sufficient strength to ward off any ground attack long enough to permit all aircraft to become airborne. This involves a 15- to 30-minute period after receiving the warning. During this time, the attacking force must be kept 800 or more meters from the aircraft to minimize the effects of small arms fire and light mortars. Defense measures must be planned in advance to meet various situations. For additional details of local defense, refer to FM 31-81 and FM 31-85.

(3) *Air defense.* The composition of an Army air terminal is such that the installation is normally only capable of passive air defense. Active air defense for the protection of air terminals must be provided by attached forces.

Section III. MOVEMENT CONTROL FOR AIRMOBILE LOGISTICS (SKYWATCH)

4-9. General

The material in this section is intended as an aid to better understanding of a movement control technique, known as Skywatch, developed to provide effective supply support for airmobile operations. Skywatch is applicable to aircraft engaged in supply support operations from a logistical base to an airmobile force. It is used primarily to support division units. However, the technique may be implemented when larger size forces are employed in an airmobile operation.

4-10. Changing Situations

a. Any operating military force must be connected with a base of operations by lines of communications along which supplies may move at a speed that will allow completion of the mission. When the operating military force is engaged in airmobile operations, the requirements for speed, flexibility, and maneuverability necessitate that supplies move at a rate comparable to that of the operating force. These factors, coupled with the operating range of an airmobile force, require that resupply be done primarily by aircraft.

b. Because of rapidly changing tactical conditions and the inherent characteristics of airmobile

operations, problems of resupply are encountered that are peculiar to this type of operation. Airfields and landing sites are rapidly established where needed for the immediate tactical operation and, either by necessity or by prior plan, evacuated or abandoned as the situation dictates. Supplies en route to airfields or operating areas may arrive at the intended destination only to find the landing site no longer in operation but evacuated or fallen into enemy control. Also, a rapidly changing tactical situation may generate urgent demands from individual units for supplies that are aboard incoming aircraft but destined for other units.

c. It is necessary that aircraft operating from a logistical base and providing supply support to airmobile forces be capable of changing destination while in flight. When such a diversion of destination takes place, the cargo must be directed to a location where it can be effectively used. There is a requirement for a responsive and rapid system of control to ensure timely arrival of supplies at the most appropriate place. To meet this requirement, the Skywatch technique has been developed.

4-11. Operation of Skywatch

a. Essentially, Skywatch controls the movements of incoming and outgoing aircraft that are providing combat service support airlift from a logistical base to an airmobile force. Skywatch is organized within the transportation section of a division support command and normally is located at the support command command post. Within an airmobile division, movement control specialists are assigned to the transportation section and staff the Skywatch element. These personnel are not authorized in the transportation section of other type army divisions and must be obtained from other sources when the division or its subordinate units are employed as an airmobile force.

b. Skywatch personnel operate communication facilities and provide movement instructions to all aircraft performing combat service support airlift. Personnel also maintain flight operations charts that enable rapid identification of incoming and outgoing flights. The charts display a record of each aircraft by tail number, departure and arrival time, destination, and commodity aboard. Direct supervision of Skywatch is provided by the division transportation movements officer who is located in the transportation section of the support command post.

c. Skywatch radio facilities enable communications with the supporting logistical base, all major division and brigade airfields, and incoming and outgoing aircraft. The logistical base commander ensures that each aircraft providing combat service support en route to or departing from the airmobile force area contacts Skywatch via radio. Skywatch, knowing the current situation of each brigade base (via communications with the forward support operations officer in each committed brigade), diverts aircraft to any division location on direction of the support command operations officer. Additional information is provided to Skywatch by the aircraft crew members. First, they are required to call in after departing the logistical base, identify their cargo by shipment number, and receive instructions. Then, as they approach the destination landing area and establish contact for landing instructions, they become the link capable of informing Skywatch of current, up-to-the-minute airfield intelligence. Skywatch expedites the evacuation of prisoners of war, equipment, supplies, or empty containers by routing returning aircraft to airfields where pickup can be made and by arranging refueling, if necessary.

d. The basic supply information needed at the

Skywatch element is the air movement requirements for each operating base in terms of class, type, and quantity of supplies. The support command operations officer in the support command post provides necessary supply information to the transportation movements officer, who is responsible for Skywatch. Cargo requirements are projected at midnight for the following 24 hours and can be revised continually as the situation changes. Priorities may change frequently but, at any time, they guide Skywatch in placing necessary supplies and equipment at the right place, in the correct amount, on time. By the use of Skywatch, supplies can begin landing at a new base within minutes after word is flashed that the base is capable of accepting traffic.

e. Additional considerations involved in Skywatch are as follows:

(1) *Communication.* The supporting logistical base establishes and operates two closed radio-communications nets. One net provides communications between the movement control center (MCC) of the logistical base and the division transportation officer. The second closed net is used exclusively by the division support command operations officer and the supporting logistical base supply manager. Although the volume of traffic over each net precludes the elimination of either one, one net can be used for a limited time as a backup net when radio difficulties affect one or the other net. With the establishment of a closed net between movements personnel at the logistical base and division base, timely notification is received by the transportation section of supply flights scheduled to arrive in the division or brigade bases of operations.

(2) *Reports of shipments.* Reports of shipments (REPSHIPS) serve as the principal transportation documents to identify supplies being moved by aircraft. REPSHIPS are transmitted by the MCC logistical base and are received by the division transportation officer through the teletypewriter located in the support command command post. A separate REPSHIPS document is transmitted for each aircraft departing from the logistical base for the division area and contains the following items of information: supply request number, type and quantity of supplies aboard each aircraft, tail number of the aircraft, and departure time. The supply request number and type of supplies aboard each aircraft are identified by established codes. Tail number of the aircraft and departure time are transmitted in

the clear. The codes used minimize the amount of traffic over the communications net. The coded supply request number indicates the delivery area, date of the request, and the specific supply request by area (1st brigade area, 2d brigade area, etc.). The code used for supplies indicates not only the class of supply, such as petroleum, oil, and lubricating products (class III), but further defines

the category within each class of supply (aviation gasoline, motor gasoline, etc.). All classes of supply are palletized or containerized to the extent possible and coded accordingly. Palletizing and containerizing of cargo and supplies to the fullest extent possible enables the division to apply the system of throughput distribution to maximum advantage.



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CHAPTER 5

COMBAT SUPPORT OPERATIONS (STANAG's 3117 and 3465)

5-1. General

a. Combat support is operational assistance furnished combat elements by other designated units. Army aviation units discussed chapter 3 provide combat support when directed to do so by the appropriate commander. This may be the commander of a field army, a corps, a subordinate unified command, a military assistance command, or an independent force. Airlift operations performed by these units when in support of a tactical force are considered to be combat support operations. Normally, the combat forces receive tactical airlift from aviation units that are organic to divisions and corps. It is only when the tactical situation demands additional airlift beyond the capability of the division and corps aviation units that aviation elements of a support command are called on to provide combat support.

b. Army combat service support air transport units may be called on to provide combat support airlift in the following situations: movement of units engaged in airmobile operations, shifting and relocation of forces within the combat zone, movement of reserves, and movement of units for rear area protection and area damage control. The requirement for combat service support air transportation to support combat elements may be generated by—

- (1) A need for attaining tactical advantage.
- (2) A need for speed and flexibility.
- (3) Dispersion of units on a nuclear battlefield.
- (4) Inadequate surface routes as a result of enemy interdiction, terrain obstacles, or the isolation of friendly forces.
- (5) Advance of tactical units beyond the capability of surface transportation or the need for reinforcement of threatened areas.

5-2. Responsibilities and Relationships

a. When directed by the appropriate commander, air transport units that normally provide

combat service support airlift to a support command may be employed in combat support operations. The decision to divert either a portion or all of these air transport units for tactical airlift support must be weighed against the effect on the combat service support transportation airlift service that is operated on a continuous basis. During the time that the aviation units are providing combat support, the capability to provide combat service support is reduced in direct proportion to the number of units diverted. It is essential that the units be returned to the control of the support command as soon as practical on completion of the tactical operation.

b. Requests for tactical airlift are submitted by the combat forces to the appropriate command for approval and fulfillment. Requests originating within a division are coordinated by the division aviation officer and the G3. When division airlift requirements cannot be supported by organic division aviation units, the request is forwarded to the next higher headquarters, usually corps. Requests are submitted to the corps aviation officer for approval by the corps G3. Airlift requests that cannot be supported by either division or corps aviation units are forwarded to the field army, where they are coordinated by the army aviation officer and submitted to the army G3 for approval. Upon notification from the field army G3 of a commitment to provide combat support airlift, the support commander's aviation officer determines the combat service support air transport units most suitable to support the tactical requirement.

c. The combat force that requests tactical airlift is responsible for planning the movement. The air transport unit that is designated to perform the airlift establishes liaison with the supported unit to assist in the movement planning. (See appendix B for a liaison officer's guide.) Aircraft used in combat support operations are normally provided on a mission basis, with the aviation unit integrity maintained as much as possible. The re-

relationship between the combat service support air transport commander and the combat force commander depends on the mission assignment status of the aviation unit. Aviation units are attached to, under the operational control of, or in direct support of the combat force. Refer to FM 1-15, FM 1-100, and FM 57-35 for more detailed information on the relationship between the air transport unit and the combat force.

5-3. Employment

a. The composition of the combat service support air transport force employed in a combat support operation is directly influenced by the magnitude of the tactical airlift requirement. The participation of several air transport companies will require the employment of an aviation battalion to provide command and control of these units.

b. On receipt of a combat support mission, commanders supervise the preparation and dissemination of employment procedures to members of the unit. Employment procedures are developed in conformity with the operational plan prepared by the combat force commander. Combat service support air transport commanders, through their subordinate leaders, ensure that flight personnel participating in the operation are properly briefed. Proper orientation minimizes confusion, reduces the risk of failure, and enables personnel to adjust rapidly to deviations from the original plan. Instructions to flightcrews must be explicit and brief and, as a minimum, will include the following:

(1) Designation of flight leaders and the tactical unit(s) to be supported by each.

(2) Composition of flight units to include number of aircraft, based on the combat force commander's plan.

(3) Location of loading and landing sites.

(4) Flight routes and alternates.

(5) En route flight formations, altitude, and flight speed.

(6) Air traffic control and IFF (identification, friend or foe) procedures.

(7) Intelligence, to include weather forecast.

(8) Location of refueling sites and instructions for using these facilities.

(9) Schedule for movement to the pickup zone.

(10) Emergency procedures.

5-4. Tactical Loading

a. General.

(1) The aviation commander ensures that loads are within the capability of the aircraft and that they are properly secured so as not to create a hazard in flight.

(2) It must be recognized that loading is not always done under ideal, preplanned conditions. Many situations will require loading without preconceived plans and will necessitate that loads be made up on site. The following basic principles apply during combat support operations:

(*a*) The lifted unit loads tactically. All individuals carry only minimum essential combat equipment. Ammunition accompanies each weapon in minimum amounts necessary for mission accomplishment.

(*b*) Aviation units provide a standard number of a particular type of helicopter for a lift of a given type of supported unit. In other words, an assault support (medium) helicopter company equipped with CH-47 Chinooks will have predetermined plans that establish the number of helicopters needed to airlift a particular type of tactical unit.

(*c*) Key personnel and equipment are distributed throughout several aircraft.

(*d*) Each load is safely balanced and secured.

(*e*) Items of equipment with all parts and accessories needed to make them operational are loaded in the same aircraft.

(*f*) Crews accompany crew-served weapons.

b. Sling Loads.

(1) The unit to be lifted provides all essential equipment and personnel for sling loading, including hookup teams. The combat service support air transport unit will provide technical supervision to ensure that sling loads are prepared and attached to the aircraft in such a manner as to ensure safety of operations. Sling-loaded helicopters are normally located near the rear of formations. In other situations, all helicopters of the formation may pick up sling loads. If simultaneous movement of internal- and sling-loaded helicopters is desired, the sling-loaded helicopters hook up and depart prior to the remainder of the formation.

(2) The following factors favor external loading of supplies and equipment:

(*a*) Outsize equipment.

(*b*) Unavailability of helicopter touchdown landing sites.

(c) Landing areas subject to hostile fire.

(3) A sling load signalman is responsible for guiding the helicopter, by hand and arm signals, to a point over the load which will permit hookup. After hookup, he is responsible to signal the pilot to gently lift the load a few inches off the ground to determine if it is secure and, if it is, to signal the pilot that he is clear for takeoff. The signalman's position, as viewed from the helicopter, is 30 to 50 meters in front and to the right of the load.

(4) A hookup man moves to the load when the helicopter is over it. He gives the signalman appropriate hand and arm signals to reposition the aircraft, if required, to make the hookup.

(5) The helicopter crew chief or flight engineer takes up a position inside the helicopter where he can observe the load and provide the pilot, through the aircraft communications system, with maneuvering instructions.

5-5. Communications

a. General.

(1) It is a major consideration of Army air transport units who normally perform combat service support operations to ensure that adequate communications are established with the tactical forces involved in a particular combat support operation, such as other aviation units, supported combat forces, and higher headquarters. There is no intent in this paragraph to establish hard and fast rules or procedures but rather to provide general communication guidance for support command air transport units when attached to a tactical force.

(2) Radio is the primary means of communication during tactical airlift operations. Wire and courier will be used if time and the specific tactical situation warrant.

(3) It must be assumed that the enemy is capable of deriving valuable information from intercepted communications, especially radio. For these reasons, strict adherence to communications security procedures and practices is required at all times. See FM 32-5 for details on communications security.

b. Radio Nets.

(1) *Aviation brigade or group frequency modulated (FM) command/operations net.* When an aviation battalion headquarters, along with air transport units, is attached to an aviation brigade or an aviation group for command and control, it will join an FM net that is established for communication between the senior headquarters and the

aviation battalions. The brigade or group FM net will be the primary means of voice communication to the battalion and normally will be operated on a 24-hour basis. The brigade or group may also establish a high frequency command net as a secondary means of radio communication to the battalion. This net has the capability of providing voice, continuous wave, and radioteletypewriter communication.

(2) *Aviation battalion FM command/operations net.* The battalion FM net is the primary means of radio communication within the battalion and its subordinate air transport companies. The battalion may also provide a high frequency net as a second means of radio communication and when distance precludes communication by FM. The high frequency net provides voice and continuous wave capabilities from the battalion to the companies.

(3) *Aviation company nets.* Use of company radio nets depends on the unit's communication capabilities, local standing operating procedures (SOP's), and the mission. In the absence of other guidance, the following is recommended:

(a) All aircraft and ground stations will monitor company FM. This is the primary means of ground-to-air communication and is the common command net for the company during an operation.

(b) Air transport aircraft use preselected radio frequencies for air-to-air communication.

(c) The company commander will normally operate in three FM nets. They are the battalion command/operations net, the company command net, and the supported unit's command net.

5-6. Types of Operations

Army combat service support air transport units may participate in various types of operations identified within such broad categories as offensive, defensive, retrograde, and special operations. Army combat service support air transport units also participate in internal defense operations in support of US-HC (United States-host country) forces.

a. Offensive Operations.

(1) *Movement to contact.* Movement to contact is an offensive operation to gain or reestablish contact with the enemy. Army air transport units can provide necessary airlift to move combat forces over broad areas in the minimum of time and into positions that will assist the commander in obtaining a tactical advantage.

(2) *Meeting engagement.* Tactical operations in undeveloped areas, in a stability operational environment, and in locations where combat forces are widely dispersed are particularly vulnerable to meeting engagements. Such an engagement is a combat action that occurs when a moving force, incompletely deployed for battle, engages an enemy force, static or in motion, concerning which it has inadequate intelligence. The ability of the combat commander to airlift necessary troops and equipment rapidly into a favorable tactical position provides him with a distinct advantage.

(3) *Vertical envelopment.* In a vertical envelopment, the forces are airlifted into positions and bypass the enemy's main defensive strength. This allows the envelopment force to secure objectives in the rear that cut the enemy's escape route and disrupt his communications and support. Vertical envelopment is desirable when attacking an organized enemy position that ground combat forces might find difficult to destroy by frontal assault. This type of maneuver permits the combat force commander to engage an enemy with troops that are still fresh and strong. It also provides the combat commander with the added effect of surprise and shock action.

(4) *Penetration.* Penetration seeks to break through the enemy's defensive position, to widen the gap created, and to destroy the continuity of his position. The divided enemy forces are then destroyed and mobile forces exploit the enemy rear positions. Air transport units can provide airlift for combat forces conducting operations to seize limited objectives, to seal off approach routes of enemy reserves, and to seize critical terrain on the flanks of the penetration.

(5) *Infiltration and exfiltration.* Infiltration is the movement of small groups or individuals into an area at extended or irregular intervals. When used in connection with the enemy, it implies that contact is avoided. Exfiltration is the removal of personnel or units from areas under enemy control by stealth, deception, surprise, or clandestine means. Air transport units may be employed to support this type of operation by airlifting part or all of the participating force or by airdropping supplies and equipment.

(6) *Exploitation and pursuit.* Exploitation is a phase of offensive action that usually follows a successful penetration or envelopment. It is characterized by rapid advances against lessening resistance. Pursuit is an offensive action against a retreating enemy force. It may consist entirely of

direct pressure, or it may be a combination of direct pressure and encircling movements. Army combat service support air transport units may be used in exploitation and pursuit roles to airlift supplies that are rapidly consumed; to provide aerial movement of troops and equipment to key positions on the enemy's flank or rear; and to provide airlift to seize objectives in the enemy rear, cut lines of communication, block escape routes, and destroy an enemy rear guard.

b. Defensive Operations.

(1) *Mobile defense.* Mobile defense relies on maneuver of combat forces with the retention of organization and firepower in an effort to seize the initiative from the enemy. In this type of operation, most of the defending force is held as a striking force, with the remainder manning the forward defense positions. The defender seeks to engage the enemy in decisive action at a time and place of the defender's choosing. The employment of Army air transport in a mobile defense provides the combat force commander with a tactical advantage. Airlifted troops enable the commander to shift forces at his choice of time and to positions that provide the most suitable area for engagement.

(2) *Area defense.* In area defense, the defending forces are disposed in selected combat tactical areas. Principal reliance is placed on the ability of the combat forces in the defended areas to maintain their position and to control the terrain for a specified period. Army combat service support air transport units may be called on to support the combat forces in much the same manner as in mobile defense. However, an area defense usually requires less support from air transport units than does a mobile defense.

(3) *Counterattack.* Counterattack is an operation by a part or all of a defending force against an enemy attacking force to regain lost ground or to cut off the enemy's advancing units. The availability of air transport units enables the defending combat force commander to rely more heavily on reserve troops located in dispersed areas and to cover more enemy avenues of approach.

c. Retrograde Operations. A retrograde operation is a movement of a force to the rear or away from the enemy. A retrograde movement may be forced by the enemy, or it may be made voluntarily. Such movement may be classified as a withdrawal, a retirement, or a delaying action.

(1) *Withdrawal.* In a withdrawal, all or part of a deployed force disengages from the enemy.

Army combat service support air transport units can be used to speed up a withdrawal, giving the withdrawing units more time to organize their rearward positions. Air transport also makes it easier to extricate covering forces.

(2) *Retirement.* A retirement is an orderly withdrawal without pressure from the enemy. The use of air transport in this type of operation permits the movement of retiring forces to the rear to gain distance from the enemy.

(3) *Delaying action.* Delaying actions are used when space is traded for time and maximum punishment is inflicted on the enemy without being decisively involved in combat. Airlifted combat forces can take maximum advantage of delaying positions because they do not depend on adjacent road nets for maneuverability and escape.

d. Special Operations.

(1) *Amphibious.* An amphibious operation is an attack launched from the sea involving a landing on a hostile shore. Army air transport units may be employed in both the assault and the general unloading phases of the ship-to-shore movement, as well as within the beachhead. Refer to FM 31-11 and FM 31-12 for details of amphibious operations and the employment of Army air transport.

(2) *Chemical and radiological operations.* Army air transport units afford the ground commander the increased mobility and flexibility needed to conduct chemical and radiological operations. Chemical and radiological materiel needed for such operations include weapons, devices, and agents, plus protective equipment. Army air transport units may be called on to provide the following type of support:

(a) Transport of chemical and radiological materiel from dispersed supply points to combat forces for immediate employment.

(b) Air movement of combat forces as a part of a chemical and radiological operation.

(c) Airlift of protective equipment to critical areas.

(d) Evacuation of forces from contaminated areas.

(e) Conduct of chemical and radiological aerial surveys.

e. Internal Defense Operations. Internal defense is the full range of measures taken by a government and its allies to free and protect its society from subversion, lawlessness, and insurgency. Internal defense operations are conducted

directly against armed insurgents and their underground organization, support system, external sanctuary, or outside supporting power. Army combat service support air transport units may be called on to participate in such operations by providing airlift of personnel and cargo and also to support other tasks associated with internal defense. Internal defense operations include airlift of United States-host country (US-HC) forces, equipment, and cargo; internal security; military civic action; advisory assistance; intelligence operations and psychological operations. Additional discussion of internal defense operations is in FM 31-16 and FM 31-22.

(1) *Airlift of US-HC forces, equipment, and cargo.* The major task of Army combat service support air transport units in supporting internal defense operations is to provide prompt airlift of US-HC forces throughout the area of operations and to ensure continuous resupply of these forces. The nature of enemy forces and their tactical capabilities, including guerrilla and more sophisticated forms of warfare, coupled with poor road nets and rugged terrain, which are characteristic of stability operational environments, create mobility disadvantages for standard armed forces and place great reliance on movement by aircraft. Some typical missions may include airlifting personnel and cargo from ship to shore in areas lacking adequate harbor facilities or beaches, airlifting artillery or vehicles in support of ground or airmobile forces, and airlifting reserve forces to reinforce engaged troops or to block avenues of escape.

(2) *Internal security.* Army combat service support air transport units may support UD-HC military forces and civilian agencies to maintain law and order and to control the movement of material and resources. Operations may include airlifting police and security forces on raids, cordon and search, and border security into remote areas. Transport helicopters may be used during resettlement operations to airlift village inhabitants and refugee groups with their belongings to new village complexes and designated secure areas.

(3) *Military civic action.* Army combat service support air transport units may be used in support of military civic action programs by providing airlift of personnel and cargo into remote areas. Such operations may include air movement of construction equipment and building supplies, transporting civic action specialist teams (for example, medical, engineer, agricultural); providing

air movement of disaster relief emergency support, and airlifting survey and mapping parties.

(4) *Advisory assistance.* Individuals or elements of Army combat service support air transport units may be employed to train and advise host country personnel. Advisory assistance teams may conduct schools and training centers to develop the host country capability for operating their own aircraft and carrying out air transport operations. Air transport units transport and supply mobile training teams and civilian specialist teams providing advisory assistance in isolated areas.

(5) *Intelligence operations.* Aircrews provide one of the most valuable sources of intelligence

data. Participation in airlift operations provides the crews with the opportunity of becoming intimately familiar with vast areas and the activities taking place within them, and changes in activity and/or terrain itself become recognizable. Unit intelligence officers maintain up-to-date intelligence situation maps depicting areas of enemy activity, antiaircraft fire, landing zones, safe areas, and evasion and escape routes.

(6) *Psychological operations.* Army combat service support air transport units may provide air movement for psychological operations personnel and equipment into remote or isolated areas. Examples of such support would be the airlift of radio vans, printing facilities, audio-visual units, and entertainment teams.

CHAPTER 6

TRAINING

6-1 Responsibilities

a. General. The purpose of the Army training program is to develop and maintain a state of proficiency in both individuals and units that will ensure the successful accomplishment of assigned missions. Training is done on an individual, group, or unit basis. It may consist of training in service schools or unit schools or on-the-job training. Training is a continuous process that must be conducted in such a manner that the efficiency of the unit when performing its normal operations will not be materially interrupted.

b. Aviation Battalion Commander. The combat aviation battalion commander is responsible for the establishment of training schedules, technical training programs, and unit schools for subordinate combat service support air transport units. The combat aviation battalion actively supervises the training of all subordinate units. The battalion headquarters effects the necessary planning, coordination, and liaison to provide combined training exercises among air transport units, tactical forces, and other support type units.

c. Combat Service Support Air Transport Unit Commanders. Unit commanders are responsible for the training in their organizations. Commanders of units providing combat service support airlift implement training programs established by higher headquarters. The company commander, or his delegated representative, selects personnel to fill schools quotas, selects instructor personnel, and supervises training conducted within the unit. Continuous observation of training is necessary to evaluate how well training objectives are being accomplished.

6-2. Training Publications

a. Army training programs (ATP's) are documents published by the Department of the Army that provide guidance on preparing training programs and schedules for specific Army units. ATP's prescribe a general subject outline of training to be conducted by operational units and

outline the minimum essential training required. ATP's also prescribe the subject, number of hours to be devoted to each subject, and essential study references and training aids which apply to the training of specific units.

b. Army subject schedules (ASubjScd's) are used to provide detailed guidance to instructors in preparation of lesson plans and scheduling of periods of instruction for training in a particular subject as outlined in ATP's. There are two types of subject schedules: unit subject schedules for unit training and military occupational speciality (MOS) subject schedules for training in specific individual skills.

c. Army training tests (ATT's) are used to evaluate the ability of units, both tactically and technically. Test scores determine whether the unit is sufficiently trained to perform its assigned mission and whether the individuals of the unit are MOS-qualified and are used correctly.

d. FM 21-5 and FM 21-6 contain basic guidance for Army training. Other military publications available for training purposes are listed in DA Pam 310-3.

6-3. Individual Training

a. Officers and Warrant Officers.

(1) Army units providing combat service support airlift contain a greater proportion of officers and warrant officers than nonaviation units. In addition to being rated aviators, aviation officers must be equally proficient as ground officers. Therefore, aviators assigned to combat service support air transport units require training in both ground and aviation tactics. This enables Army aviators to understand the mission of the supported units and to be more efficient in providing required support.

(2) Even though the Army aviator in a combat service support air transport unit is primarily assigned to flying duty, he should be kept current on new tactics and techniques to continu-

ously improve his flying ability. This may be done through the unit's training program. Extensive training is necessary to keep the aviator proficient in both tactical and nontactical flying. Training must include instruction in the latest flight regulations and ground subjects, with cross training in all functions of the unit to which assigned.

(3) Aviation training of officers also applies to warrant officers. They should be trained with, and observe the tactics and techniques of, the ground units that will be supported.

b. Enlisted.

(1) *General.* Basic combat training for enlisted men is contained in ATP 21-114. The objective of basic combat training is to produce a physically conditioned soldier indoctrinated and drilled in the fundamentals of soldiering and familiar with basic military tactics. This training is important in aviation units, but the individual must also be a specialist in his MOS to perform his assigned duties. He must receive on-the-job training to develop his MOS proficiency, and he must maintain his basic soldiering ability.

(2) *Specialist MOS training.* The training of enlisted specialists, particularly in communications, vehicle and aircraft maintenance, avionics, and air traffic control, is one of the air transport commanders' most important training responsibilities. Specialist training, the foundation of which is laid during the advanced individual phase of the enlisted man's training, must be carefully planned and supervised. Specialist training is received at service schools, unit schools, and through on-the-job training.

6-4. Unit Training

a. Unit Training is that phase of the training program in which emphasis is placed on training personnel to function as members of a team or unit. During this training period, the unit usually spends much time in the field operating under conditions most likely to be encountered in combat. Unit training enables the Army combat service support air transport commander to evaluate the degree of proficiency of his unit in performing assigned tasks. Stress is placed on leadership, unit integrity, teamwork, operational competence, administrative efficiency, morale, and supply economy. Unit training consists of a basic unit training phase and an advanced unit training phase.

(1) *Basic unit training phase.* The objective of the basic unit training phase is to develop effective and coordinated sections and teams com-

posed of individuals who have learned particular skills and techniques during the individual training phase. The individual skills and techniques are progressively developed to meet the requirements of the subordinate elements, with the view of producing an efficiently functioning unit.

(2) *Advanced unit training phase.* The advanced unit training phase is designed to implement training previously received and to mold the subordinate elements of the unit into a smoothly functioning unit. The maximum possible unit training time should be spent in bivouacs conducted under simulated tactical situations. Particular attention should be given to operational competence; dispersion of elements; concealment; local security and defense; and operations in a nuclear environment.

b. Bivouac operations during unit training provide the best opportunity to improve both individual and unit proficiency. Army combat service support air transport units will ensure that sufficient training is scheduled to adequately develop the competence of individuals and elements when performing combat support and combat service support airlift operations. During operations under simulated tactical conditions, the capabilities and limitations of the unit are clearly disclosed. Any additional training necessary to prepare the unit for combined training or for participation in maneuvers is determined at that time.

6-5. Combined Airlift Training

a. It is most desirable to schedule combined airlift training among Army combat service support air transport units, terminal transfer elements, and supported forces. Supported forces can be either tactical units or service troops. Combined training promotes maximum understanding and coordination among the various units when engaged in combat support or combat service support airlift operations. The combat aviation battalion provides the planning, coordination, and supervision necessary for the successful implementation of combined airlift training programs.

b. The following subjects should be included in the instructions given to personnel that participate in combined airlift training:

(1) Conduct of combat service support and combat support airlift operations.

(2) Indoctrination in psychological problems inherent to air transportation.

(3) Preparation of aircraft loading plans.

(4) Familiarization with loading, restraining, and unloading cargo.

(5) Familiarization with tiedown devices and with methods of shoring cargo.

(6) Manifesting and documenting aircraft loads.

(7) Assembly techniques.

(8) Safety.



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CHAPTER 7

DUTIES OF KEY PERSONNEL

Section I. GENERAL

7-1. General

Basically, all Army aviation companies are organized and operate in the same manner—it is only in the type of aerial vehicles authorized, mission assignment, and capabilities of the unit that variances occur. This chapter is intended to apply to

only the duties of personnel in the heavy helicopter company, TOE 55-259. Duties of personnel of other Army aviation units may be found in field manuals of the appropriate arm or service. The duties and responsibilities of key personnel of the heavy helicopter company are discussed in subsequent paragraphs of this chapter.

Section II. OFFICER PERSONNEL

7-2. Company Commander

a. The company commander is both the administrator of the company and the director of its operations. He is responsible for the administration, training, supply, mess, security, and discipline of the company and he directs and supervises all phases of operation and employment of the unit. In performing his duties, he is assisted and advised by his officers and key noncommissioned officers. His responsibilities include but are not necessarily limited to the following:

(1) Planning, directing, and supervising company operations so that it carries out its primary mission of providing an efficient air transportation means capable of meeting the requirements of higher authority.

(2) Supervising all matters pertaining to company administration, supply, and mess management.

(3) Preparing training schedules in accordance with training programs and requirements established by higher headquarters, and conducting unit training in conformance with the applicable training program to attain prescribed training objectives.

(4) Managing and supervising the assignment, reassignment, and cross training of company personnel.

(5) Establishing maintenance programs and schedules, and supervising the maintenance and

care of individual and organizational equipment and materiel.

(6) Establishing unit policies and standing operating procedures (SOP's) and ensuring that the company functions in accordance with these and with the policies and directives of higher headquarters.

(7) Establishing and maintaining a high degree of communications security.

(8) Initiating and insuring adherence to the unit air and ground safety programs.

(9) Maintaining high standards of leadership, discipline, morale, and esprit de corps within the company.

(10) Keeping unit personnel and higher headquarters informed of the current situation.

b. In carrying out his command responsibilities the company commander should—

(1) Consistent with his other duties, personally plan, supervise, and participate in unit training and operations. This includes instructing in and helping personnel of his unit to improve their skills.

(2) Make frequent inspections to insure that his orders are carried out, that routine work details are equitably distributed, that food is properly prepared, and that living quarters are properly policed and maintained.

(3) Stress the principles of supply economy through the proper use, care, and maintenance of equipment.

(4) Be available, when appropriate, to discuss matters of personal or mutual interest with company personnel. In this line, he should make sure that troops are paid promptly and that personnel are properly assigned and employed.

(5) Supervise and maintain a command information program.

(6) Administer military justice fairly and impartially.

(7) Instruct and cross train subordinates in their duties.

(8) Delegate authority to unit officers and noncommissioned officers consistent with their position and the efficient operation of the company. It is general practice to assign the senior platoon leader to the flight operations platoon and also to appoint him unit executive officer as an additional duty. In this capacity, that officer can relieve the unit commander of a number of tasks and duties, and he may also take command action in the absence of the commander.

7-3. Platoon Commanders

a. Flight Operations Platoon Commander. The flight operations platoon commander is responsible for the everyday aviation operations, communications, crash rescue, and aircraft refueling of the unit. This includes but is not limited to the following:

(1) Receiving aircraft missions from higher headquarters.

(2) Assigning flight missions to the three heavy helicopter platoons.

(3) Maintaining an adequate supply of charts, maps, etc., for use by unit flightcrew personnel.

(4) Maintaining a map outlining the local flying area, restricted and caution areas, and any locally established airways.

(5) Maintaining the unit operations office to include the plotters, computers and other equipment, and regulations required for flight planning.

(6) Maintaining an up-to-date file of notices to airmen (NOTAM's).

(7) Maintaining flight records on all assigned or attached flightcrew members. This includes notification of flight time requirements to meet semi-annual and annual minimums.

(8) In coordination with the unit maintenance platoon commander, determining an expected aircraft availability.

(9) Notifying higher headquarters of expected aircraft availability.

(10) Supervising the unit communications section.

(11) Supervising the unit airfield service section.

b. Heavy Helicopter Platoon Commanders. The platoon commanders of the heavy helicopter platoons in a heavy helicopter company have the same responsibilities for training and discipline as platoon leaders in any military organization. In addition, each platoon commander is an Army aviator who commands an element of a heavy helicopter company and is responsible for the hauling of cargo and/or personnel by air transport. He is responsible for the proper training and operation of his platoon, including both the technical and the tactical phases. Following the general instructions outlined in training schedules established by the company commander, he instructs and supervises platoon personnel in the safe and proper operation of assigned helicopters, in methods of loading, and in other specified related or general subjects. Platoon commanders should train their platoon personnel with a dual purpose in mind. First, they are responsible to the company commander for development and training of platoon personnel as part of the company team. Secondly, they must make the platoon self-reliant since it may be detached from the company and operate as a separate unit. In such a situation, the platoon leader would function as commander of an independent detachment and could be responsible for the administration, transportation, supply, and security of the unit. Platoon commanders should be encouraged to act on their own initiative in order to be prepared to operate either as part of the company or as a separate detachment.

c. Maintenance Platoon Commander. The maintenance platoon commander is responsible for organizational maintenance of the company organic equipment except field communications equipment. He is also responsible for the direct support maintenance of assigned helicopters and avionics equipment within the unit capabilities. This includes but is not limited to the following:

(1) Assurance that assigned helicopters are properly maintained in accordance with applicable technical manuals, modification work orders, safety of flight notices, etc.

(2) Technical inspection of all maintenance on assigned helicopters that is performed to correct a "red-X" or safety-of-flight condition.

(3) Maintaining a current library of technical publications pertaining to the unit's organic equipment.

(4) Establishing physical location of the unit helicopter maintenance facility to include layout of the various shops, technical supply, and tool crib. Such factors as workflow, location of equipment, supplies, and work processes must be considered.

(5) Establishing priorities and production controls to ensure effective distribution of workload and maximum use of maintenance facilities.

(6) Supervising aviation technical supply activities.

(7) Supervising the preparation of helicopter status reports, aircraft and engine hour records, and equipment maintenance schedules.

(8) Arranging for instruction and training of maintenance personnel in the proper methods of maintenance and repair of unit helicopters.

(9) Performing or directing test flights on unit aircraft.

d. Other Officer Personnel. The flight operations platoon commander is assisted by a flight operations officer (lieutenant) in the performance of assigned duties. The maintenance platoon commander is assisted by two aircraft maintenance technicians (warrant officers). One of these two technicians directly supervises the organic direct support or aircraft systems repair section.

Section III. ENLISTED PERSONNEL

7-4. Company Headquarters Personnel

a. First Sergeant. The first sergeant is the principal noncommissioned assistant to the company commander. He must understand the company's mission and be capable of adjusting the administrative requirements of the company to facilitate the fulfillment of that mission. He calls formations, manages the company headquarters, and coordinates company activities such as mess, administration, and supply. He acts as the intermediary between the company commander and the enlisted personnel of the unit. His duties include the following:

(1) Supervising the preparation of company correspondence.

(2) Supervising the administration of the company headquarters, including maintenance of files and preparation of recurring and special reports.

(3) Planning and posting daily company details to include coordination with operating personnel when necessary.

(4) Maintaining the unit duty roster.

(5) Supervising preparation of the unit morning report and maintaining the personnel status board.

(6) Exercising supervisory responsibility over housekeeping, work details, police of the unit area, and construction projects in the company.

(7) Assisting the unit commander in advising enlisted personnel on personal problems.

(8) Advising the company commander of morale and other personnel problems.

b. Mess Steward. The mess steward works under the supervision of the unit mess officer and is responsible for the efficient operation of the

company mess. He supervises and is responsible for drawing rations, proper preparation of meals, conformance of all unit food service personnel with food handling directives, and efficient management practices in the operation of the unit mess. The duties of the mess steward include the following:

(1) Supervising the preparation and planning of meals for the company.

(2) Drawing, inspecting, and storing rations, and accounting for rations drawn by the unit.

(3) Insuring that all food service practices meet the sanitary standards prescribed by regulations and policies of higher headquarters.

(4) Maintaining cooking equipment, including filed equipment, in a serviceable and sanitary condition.

(5) Establishing a duty schedule for mess personnel.

(6) Maintaining the required head count, mess records, menus, and reports.

(7) Keeping the unit commander informed of the food service situation.

c. Supply Sergeant. The supply sergeant should possess a thorough knowledge of directives and regulations that prescribe the care, storage, receipt, and issue of and the accounting for supplies and equipment. He should be well grounded in the fundamentals of inventory accounting methods and procedures for maintaining property books and supporting records. His specific duties, as a minimum, encompass the following:

(1) Drawing and issuing to authorized personnel the supplies and equipment prescribed by appropriate table of organization and equipment (TOE) or other authority.

(2) Accounting for all major items of equipment issued and used by the company.

(3) Inspecting for quantity and condition all nonaviation equipment or supplies received by the unit and coordinating with the supplying agency for replacement or adjustment when appropriate.

(4) Maintaining an adequate stock of expendable supplies and controlling their issue.

(5) Supervising the unit armorer and unit supply clerk.

(6) Advising the unit commander on supply matters.

d. Motor Sergeant. The motor sergeant is the chief noncommissioned officer responsible for the control, dispatch, and maintenance of unit vehicles, power generation equipment, and compressors. He normally works under the supervision of the unit motor officer. His duties include, as a minimum, the following:

(1) Assigning tasks to maintenance personnel in conformance with maintenance schedules.

(2) Diagnosing automotive mechanical trouble or failure and, when necessary, instructing mechanics as to proper corrective action to be taken.

(3) Inspecting completed work performed by unit automotive and power generation mechanics.

(4) Supervising the request, receipt, issue, and storage of automotive repair parts and expendable items.

(5) Maintaining automotive and power generation equipment maintenance records in accordance with TM 38-750.

(6) Enforcing shop safety practices.

(7) Supervising the dispatch of unit vehicles and power generation equipment.

7-5. Platoon Enlisted Personnel

a. Flight Operations Platoon Sergeant. The flight operations platoon sergeant is the chief noncommissioned officer responsible for the daily aviation operations, communications, crash rescue, and aircraft refueling. He normally works under the supervision of the flight operations platoon commander. He is assisted in the area of communications by an enlisted communications chief and airfield service section chief in the areas of crash rescue and aircraft refueling. His specific duties include but are not limited to the following:

(1) Determining availability of aircraft and aircrew flying requirements.

(2) Processing extended and local flight clearances, including an examination for conformance with flight rules and regulations.

(3) Maintaining the unit flight information board.

(4) Alerting the unit crash crew for emergency landings or other emergencies.

(5) Preparing and maintaining records and reports on flight operation activities.

(6) Maintaining a current file of aircraft flying regulations and navigational aid information.

(7) Maintaining the notice to airmen (NOTAM) file.

(8) Arranging for maintenance on transient aircraft.

(9) Instructing subordinate personnel in the processing and transmission of flight plans and in other flight operations activities.

(10) Planning and scheduling work assignments of subordinate flight operations personnel.

b. Maintenance Platoon Sergeant. The maintenance platoon sergeant is the chief noncommissioned officer who, in conjunction with the organizational maintenance section chiefs and the aircraft systems repair (direct support) section chief, is responsible for organizational maintenance and organic direct support maintenance of organic aircraft and avionics equipment. He normally works directly under the supervision of the maintenance platoon commander. His duties include, as a minimum, the following:

(1) Planning and organizing work schedules.

(2) Supervising and instructing subordinate personnel in proper work techniques and procedures.

(3) Understanding and enforcing the principles of shop safety and procedures for storing volatile materials.

(4) Supervising the upkeep of aircraft maintenance forms and records. Understanding and applying production and quality control procedures to maintenance operations.

(5) Supervising the requisition, receipt, storage, and issue of aircraft and avionics repair parts and expendable supplies.

CHAPTER 8

PERSONNEL MANAGEMENT AND ADMINISTRATION

8-1. General

From an administration standpoint, a company commander has the task of combining four basic resources to accomplish the company's mission: manpower, matériel, time, and facilities. However, he seldom has the men, matériel, or the time he would like to have to perform this mission. Therefore, his resourcefulness will be taxed in using available facilities to the best advantage.

8-2. Personnel Actions

The types of personnel actions performed in the company include assignment of personnel, promotions, reductions, making out individual sick slips, and submitting recommendations for awards, decorations, and commendations.

a. Assignment of Personnel. The company commander should assign personnel according to their military occupational specialty (MOS). The following are guides to effective use of personnel:

- (1) Try at all times to pick the right man for a specific job.
- (2) Through adequate incentives, stimulate the individual's desire to produce.
- (3) Through the use of a suitable training program, capitalize on the individual's intelligence, aptitude, and interests.
- (4) Assign essential tasks to individuals; avoid having them perform obviously unnecessary ones.
- (5) Through intelligently planned assignments and a progressive rotation of assignments, provide individuals an opportunity for professional development.

b. Promotions and Reductions. AR 600-200 specifies the authority of the commander to promote enlisted personnel to grades E-3 and E-4 or reduce them from these grades. Promotions and reductions, depending on how they are handled, can either improve or damage the morale and efficiency of the company. Promotions should not be automatic nor based on partiality, and the commander must be discreet in making or recom-

mending them. He should follow the underlying concept—promote the best qualified individual considering time in grade as an important factor. Individuals should be made aware of the qualifications and requirements for the next higher grade and should be encouraged to prepare themselves for a more responsible position.

c. Individual Sick Slip (DD Form 689). Serving as a communication medium between the commander, the sick or injured person, and the medical officer, the individual sick slip is used to route men reporting for sick call to the dispensary and to inform their commander as to the disposition of each case. The first sergeant or the company clerk usually prepares the sick slip for the sick or injured individual to carry to the medical facility. It is completed by the medical personnel and returned to the company commander. Although the sick slip is normally initiated at the sick or injured individual's company headquarters, in cases of emergency it may be initiated at the medical facility. It is not a permanent record but may be a basis for reporting a change in the status of an individual. After accomplishment of its purpose, the sick slip is destroyed except when it must be forwarded to the officer exercising special court-martial jurisdiction for line of duty determination. AR 600-6 prescribes the procedures for preparation and use of the individual sick slip.

d. Awards, Decorations, and Commendations. The commanding officer may recommend company personnel for awards, decorations, and commendations. His recommendations are prepared according to AR 672-5-1 and submitted to the next higher headquarters. The commander, however, is authorized to award letters of commendation to personnel for outstanding performance in their work, suggestions for improving operations, etc. Copies of these commendations should be filed in the individual's personnel file.

8-3. Recordkeeping

Records kept in the company include personnel rosters and reports, duty rosters, policy file, and unit journal and history.

a. Unit Manning Report. This report is the principal management tool of the unit commander. The report is prepared by the servicing data processing activity as changes warrant or as required by the unit commander and is provided to the commander by the servicing personnel service company. Changes in the status of individuals or the unit are reported to the servicing personnel service company as follows:

(1) Numerous minor changes relating to personnel status or unit structure and composition may be accomplished by using a transaction code for the action desired to note the new information in the space provided on the unit manning report.

(2) Complex changes or those relating to items of information not recorded on the unit manning report may be submitted on separate data request/change forms. Depending on the volume of changes or actions to be reported these forms may be submitted in lieu of or attached to the unit manning report.

(3) Those supported units equipped with digital input/output devices or other equipment capable of producing data in an electronic or mechanical form oriented to computer processing, such as punched card or paper tapes, will use transaction coding techniques to transmit requirements for information or action. A catalog of standard transaction codes including format and composition will be used for this purpose.

(4) The request for information or a change in an individual's status affecting personnel records is translated into appropriate transaction codes and converted to punched paper tape by the servicing personnel service company for transmission to the data processing facility.

b. Duty Rosters. For the purpose of ensuring an equitable distribution of duty assignments, Duty Rosters, DA Form 6's, are normally maintained at each company by the first sergeant. Separate rosters will be kept for each duty requiring the detail of individuals. Such duties include kitchen police, guard, charge of quarters, and other recurring details. Whenever practicable, consolidated work-day-weekend-holiday rosters may be maintained. Only names of those eligible individuals required to perform the duty will be entered on the roster; names are initially entered at the bottom of the form regardless of grade. AR 220-45 prescribes the procedures for maintaining duty rosters.

c. Policy File. While not mandatory, a policy file should be maintained for the company commander. Examples of documents contained in

such a file include a summary of decisions, directives from higher headquarters, experiences, and other information to serve as a guide for company personnel. The policies may be in the form of brief notes, plans, or directives and may include charts and tables.

d. Unit Journal and History. Prepared daily, the unit journal gives a chronological record of events. The preparation and maintenance of a unit journal and history may be regarded as a command function, depending on the specific command or theater army policy.

8-4. Reports

Included in the reports required to be submitted by the company are two of prime importance: conduct and efficiency ratings and enlisted efficiency reports.

a. Conduct and Efficiency Ratings of Enlisted Personnel.

(1) These ratings provide information on an individual for use in conjunction with other available data as a guide or criterion in determining eligibility for certain personnel actions. Such actions include good conduct medal awards, assignments, promotions, and types of discharges. Conduct ratings are based on demonstrated reliability, good moral influence, sobriety, and obedience. Efficiency ratings are based entirely on job performance. Each type of rating covers a specific period and should not be influenced by previous reports rendered on individuals.

(2) The unit commander is responsible for making sure that all company officers are familiar with the rating system for enlisted men (AR 600-200), the rating criteria, and the impact of conduct and efficiency ratings on the careers of individuals being rated, and that they understand the vital necessity for rendering fair and impartial ratings to preclude injustice to both the rated individual and the Government. The commander is also responsible for insuring that each enlisted person in his command is aware of the effects of the ratings on appointments, assignments, awards, and ultimately the type of discharge he will receive upon separation from the service.

b. Enlisted Efficiency Report. The Enlisted Efficiency Report (DA Form 2166-4) provides a job evaluation of enlisted personnel throughout the Army. It is designed to rate the man's characteristics and advancement potential and to make recommendations for career development. The report is used as an essential tool in determining the

enlisted man's overall value to the service as compared with all other personnel holding the same military occupational specialty (MOS) and skill level. Information on preparation and control of this report can be found in chapter 8, AR 600-200, and on the report form.

8-5. Administration

Unit mail service, unit fund, mess, and inspections are included in the administration functions requiring supervision by the company commander.

a. Unit Mail Service. A mail service should be organized in the unit so that personal and official mail is received and dispatched efficiently and promptly. The unit postal officer is responsible for the efficient operation of this service. He is a company officer who has been assigned this additional duty by the company commander. A unit mail clerk and at least one alternate will be appointed on DD Form 285 (Appointment of Military Postal Clerk, Unit Mail Clerk, or Mail Orderly) by the company commander to assist the unit postal officer.

(1) *Unit postal officer.* Specific responsibilities of the unit postal officer include active supervision of unit mail clerks and explaining AR 65-75 to them; making sure that mail is delivered promptly, and having hours of collection posted on all mail boxes. He is also responsible for checking daily and accounting for registered, insured, and certified mail and inspecting the unit mail room weekly to insure compliance with AR 65-75 (with emphasis on the provisions of paragraphs 2-1 and 2-6). Other responsibilities of the unit postal officer include reviewing the personnel locator directory to insure that it is up to date; reviewing postal records; insuring that mail is handled in the proper manner; and reporting promptly to the unit commander any known or suspected cases of loss, theft, destruction, or other mistreatment of mail.

(2) *Unit mail clerks.* Duties of unit mail clerks are: safeguarding mail until delivery or distribution is made, delivering mail promptly, assisting and advising unit personnel on postal matters, maintaining personnel locator directory file, and maintaining mail records in accordance with AR 65-75. Unit mail clerks may be held responsible for any loss brought about by their failure to handle properly mail entrusted to their care.

b. Unit Fund. A nonappropriated welfare fund, the unit fund, is established in the company to

enable the unit commander to provide welfare facilities and services not available from appropriated funds which contribute to the comfort, pleasure, contentment, and mental and physical improvement of unit personnel. Administered and supervised by a custodian with the aid of a unit fund council, the unit fund's official designation will include the name of the fund and the organization and installation to which the fund pertains. Except when he is a field grade officer, the commanding officer of the unit will be the custodian of the unit fund. When the unit commander is a field grade officer, he may appoint another officer of the unit to act as custodian of the fund. In general, the custodian's duties are to receive, safeguard, disburse, and account for the unit's nonappropriated fund. More specifically, the unit fund custodian's duties are to maintain the unit fund records; receive all assets and property of the fund; make all disbursements from the fund, which must be made by check except where they are made from the petty cash fund; and safeguard the property and the assets of the fund. He also has financial responsibility for the fund in that he may be required to reimburse it for any improper expenditure or for any loss resulting from his negligence or failure to comply with orders and regulations governing it.

(1) *Unit fund council.* The custodian appoints a unit fund council consisting of himself and at least two other members, usually either commissioned or noncommissioned officers, to assist him in the proper administration and supervision of the fund. When approved by the installation commander, specialists in grade E-4 or above may be appointed to the unit fund council. The custodian serves as president of the council and the junior member normally serves as recorder. The council meets at least once each quarter, or more frequently when necessary, at the call of the president. Proceedings of these meetings are recorded in minutes which are filed in the monthly record folder.

(2) *Sources of unit fund income.* The primary source of unit fund income is the profits derived from revenue-producing activities such as Army/Air Force Exchange Service (AAFES) and Army/Air Force Motion Picture Service (AAFMPs). These profits are distributed to the unit fund through the central post fund. Other authorized sources of unit fund income include proceeds from the sale of unserviceable fund-owned property, proceeds from the sale of serviceable fund-owned property sold to other nonappropriated funds at the same installation, and income

from savings accounts and investments in United States Government securities. Unit fund records are maintained in accordance with AR 230-21. Detailed information on the operation of the unit fund may be found in Department of the Army Pam 350-14.

c. Inspections. Frequent inspections to determine the military and technical efficiency of the company are made by the company commander and by commanders of higher headquarters, to which the company is attached. Types of inspections are command, administrative, and command maintenance management.

(1) *Command inspections* cover such activities as food service, sanitation, discipline, and general military effectiveness.

(2) *Administrative inspections* are conducted to determine whether the company is complying with regulations and directives, standing operating procedures (SOP's), and instructions from higher headquarters.

8-6. Unit Supply

The unit supply section provides supply and equipment support to the other elements of the unit. The supplies and equipment include TOE property, station (or installed) property, and organizational clothing and equipment. Items of these types of property may be placed in one of two categories: expendable or nonexpendable.

a. Supply Responsibilities. All military personnel who have military property in their possession or under their control have certain responsibilities regarding this property. This may be either command or direct responsibility.

(1) *Command responsibility.* The commander must insure that the property of his command is safeguarded properly, accounted for, and administered. This is a requirement inherent in command. For both supply and tactical purposes, it is essential that commanding officers be assured that the required property is on hand or on request, that it is in serviceable condition, and that it is cared for and used properly. There should be no accumulation of property beyond authorized levels of allowances. Supply accounting and proper administration of supplies are functions of command. Commanding officers are not exempt from pecuniary liability for loss, damage, or destruction of Government property pertaining to their commands.

(2) *Direct responsibility.* As distinguished from command responsibility, direct responsibility applies to all individuals to whom public prop-

erty has been entrusted. An individual with direct responsibility for military property is charged with the care and safeguarding of the property whether such property is in his personal possession, in use, or in storage. The signature of an individual on a hand receipt for property is prima facie evidence that the individual has accepted responsibility for the care and safekeeping of the property. The assignment to duty, such as command of a unit in which responsibility for property is inherent, is also prima facie evidence that the individual so assigned is charged with responsibility for the care and safekeeping of the military property of the unit.

b. Company Supply Personnel. Company personnel who are directly concerned with unit supply activities include the company commander, unit supply officer, platoon commanders or leaders, supply sergeant, and armorer. They are discussed in the following subparagraphs so far as their supply duties are concerned.

(1) *Company commander.* The company commander has the overall responsibility for supply activities in the company, and this responsibility cannot be delegated. Specific requirements of the company commander are to: insure that all authorized equipment is on hand or that a request has been submitted for equipment authorized but not on hand; by frequent inspections, determine that all company property is complete and serviceable; insure that company supply personnel are properly trained in their duties; make sure that all members of the company know how to correctly maintain unit property; insure that no property is on hand which is not authorized by proper authority; rapidly take appropriate measures to account for company property which has been lost, damaged, or destroyed; and develop a unit standing operating procedure (SOP) for the security of all unit property.

(2) *Unit supply officer.* The unit supply officer, who normally has this assignment as an additional duty, is the company commander's principal assistant in the area of supply. As the unit supply officer, his duties include but are not limited to receipting for and controlling TOE and installation property for the company headquarters, assisting the company commander in conducting inspections and inventories of unit property, coordinating with higher headquarters supply personnel on company supply matters, and supervising the company supply sergeant and armorer.

(3) *Platoon commanders or leaders.* The platoon commander's or leader's specific supply functions include insuring that members of his platoon maintain the property under their control; making sure that members of his platoon are trained in proper maintenance procedures and that they have the supplies necessary to do the required maintenance; conducting frequent inspections of platoon property to make sure that the property is being maintained satisfactorily and that the required amount of property is on hand or on request.

(4) *Supply sergeant.* The supply sergeant operates the company supply room, prepares and maintains supply records, and requests and obtains company supplies. He handles the issue and turn-in of supplies, processes unit laundry, and assists the supply officer, as directed, in unit supply matters.

(5) *Armorer.* In addition to his regular duties, the armorer is an assistant to the supply sergeant. In this capacity he performs supply duties assigned by the unit supply officer and the supply sergeant.

8-7. Military Pay

a. The prompt and accurate payment of unit personnel is a joint responsibility of the servicing finance officer and the unit commander.

b. To insure that personnel are promptly and accurately paid, the commanding officer is responsible for—

(1) Acting as class A agent officer or appointing such an officer for payment of members of his command.

(2) Answering questions for subordinates regarding pay matters and referring difficult or technical questions to the finance officer.

(3) Making final approval or disapproval of subordinates' requests for specific pay activities' actions such as partial payment, advance of pay and/or allowances, and emergency payment of withdrawals from the savings deposit program.

(4) Assuring that pay change information is collected and transmitted on a timely basis to the servicing finance officer.

c. Detailed information on pay responsibilities should be obtained from the servicing finance officer and DA Pam 35-1.

d. Class A Agents.

(1) Class A agents are appointed on orders by the company commander to make payment to members of his command.

(2) Specific instructions concerning responsibilities and duties of class A agents are contained in FM 14-8.



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CHAPTER 9

SECURITY AND DEFENSE

9-1. Responsibility

a. The security and defense of the company are the responsibility of the company commander. He prepares a plan based on guidance and instructions received from battalion headquarters and on the company's specific mission, situation, and location. He must insure that all company personnel are familiar with the plan, that each person knows what his duties and specific responsibilities are as outlined in the plan, and that all personnel know the proper procedures for dispersal, concealment, and camouflage. He must know what defensive measures are to be taken during guerrilla, airborne, or chemical-biological-radiological (CBR) attack. He should make sure that unit personnel are assigned and are familiar with specific duties with respect to unit defense. The commander should survey his operations and make plans to lessen the possibility and effects of an attack, using all means at his disposal. He should plan the action to be taken during and following an attack so that the unit may continue to perform its mission. His plans should be coordinated with the plans of adjacent units. The company has an estimated rear area protection (RAP) potential which includes furnishing personnel for rear area security and for area damage control (FM 31-85).

b. Battalion headquarters is responsible for keeping the company commander informed of the tactical situation and the enemy's capabilities so that he may determine the degree of dispersion required in the company area of operations. Likewise, the company commander is responsible for informing the battalion and adjacent units immediately about an attack on his unit. When an attack is reported, the company commander should report the type and strength of the attacking force so that assistance, if available and required, may be provided.

9-2. Defense Plan

a. General. Since every situation cannot be foreseen, the plan for defense of the unit's area must

be all-inclusive and flexible. This plan should reflect the assignment of individual responsibilities and provide for the strongest defense that can be achieved with the organic personnel and weapons available. It must be simple, clear, and understood by all unit personnel. One basic plan with alternate courses of action for meeting various types of attacks will generally be the most advantageous. Although the unit may be attacked by regular enemy ground forces, the commander's main concern is defense against attacks by aircraft, missiles, and guerrillas.

b. Passive Defense. Because the company has a limited number of weapons and personnel, the company commander should rely heavily on passive defense measures. These measures include camouflage, concealment, cover, dispersion, light and noise discipline, communications security, and warning systems. Use of these measures will deny the enemy information through observing company operation and will reduce casualties and damage.

(1) *Air attack.* The best defense against air attack is to prevent detection by screening company facilities from enemy view and to disperse facilities to minimize damage. Command posts and communications equipment should be protected by covered shelters, and foxholes and slit trenches should be provided for individuals. Emplacements for weapons and revetments and cuts for vehicles and other equipment afford concealment from air attack. The company commander should study the terrain of his area of operations to locate natural geographic features such as caves, steep hills, and cuts. He should ascertain the existence and condition of manmade structures such as air raid shelters, mines, tunnels, and other underground installations that can be used to protect personnel and materiel. In selecting specific underground facilities, the following factors should be considered:

(a) More than one exit should be provided.

(b) Ventilating systems and fresh air intake should be adequate.

(c) A moisture control system should be provided.

(d) Provisions should be made to prevent the sealing off or collapse of the facility.

(e) Sufficient operating and storage space for personnel and supplies should be provided.

(2) *Ground attack.* Defense against ground attack should include the following measures:

(a) A warning system.

(b) Assignment of defense sectors to the various elements of the company.

(c) Familiarization of personnel with defense positions and duties.

(d) Use of slit trenches and foxholes.

(e) Assignment of personnel to specific positions and designation of an assembly point for a mobile reserve.

(f) Fortifications to cover avenues of approach.

(g) Camouflage discipline.

(h) Coordination with adjacent units.

(i) A plan for perimeter defense.

(j) Frequent rehearsals and inspections of the defense system.

(k) Plans for destruction of materiel.

(l) Frequent test-firing of crew-served weapons.

(m) Organization of firefighting crews.

(n) A medical evacuation plan.

c. *Active Defense.* The defense plan for the company area must indicate fields of fire, observation points, avenues of approach, and obstacles that will impede the enemy. Close coordination with commanders of adjacent units is necessary to insure mutual support and assistance and facilitate the assignment of sentinel posts, formation of patrols, determination of areas of individual unit responsibility and areas of joint responsibility.

d. *Perimeter Defense.* To help protect the company against surprise attack, a well-organized and effective perimeter defense is needed. Each individual assigned to perimeter defense should be instructed in his mission, zone of fire, and area of responsibility. The following are factors necessary in effecting perimeter defense:

(1) *Warning system.* The key to the defense of the company area is an adequate warning system. It includes such items as telephones, radios, whistles, Klaxons, observation posts, trip flares, sentinel posts, and patrols to control areas which could become locations for enemy observers.

(2) *Obstacles.* Certain natural obstacles near the perimeter defense line could be improved with

some manmade obstacles. For example, streams, swamps, ravines, cliffs, and dense woods should be improved with the use of barbed wire, minefields, boobytraps, and roadblocks. These obstacles should be covered by weapons fire.

9-3. Rehearsals

So that individuals may become proficient in performing their assigned tasks without hesitation or confusion, plans for security and defense of the area or installation should be rehearsed frequently. The duties of key personnel should be made clear, and alternates should be designated in case key personnel become casualties. Damage resulting from enemy air or ground attack will be minimized by an effective defense plan which is rehearsed frequently.

9-4. Nuclear and CBR Defense

A complete defense plan should provide for protection against nuclear and CBR attack. The nuclear and CBR plan may be prepared as part of the overall unit defense plan, or it may be prepared as an annex. All personnel should be trained to promptly recognize nuclear and CBR attacks. They should also be familiar with first aid techniques and measures to counteract or reduce the effects of the damage. The nuclear and CBR plan should include the following:

a. Company standing operating procedures (SOP) for defense against nuclear and CBR attack.

b. Warning systems with provisions to designate the type of attack, if practicable.

c. Description of duties of fireguards, security guards, and unit CBR personnel.

d. Training of all personnel in individual protective and first aid measures.

e. Inspection of materiel received from using units if contamination is suspected.

f. Methods of segregating contaminated supplies and equipment if decontamination cannot be done by unit personnel. Segregation should be done by properly marking the area as a warning to other personnel.

g. Maintaining liaison with chemical units for technical advice and assistance.

h. Use of protective masks, special clothing, and other protective equipment.

i. Use of protective shelters for personnel and supplies.

j. Immunization and field sanitation procedures.

9-5. Electronic Warfare Defense

Air transport operations rely heavily on the ability to communicate by radio. The enemy may use electronic warfare to degrade or destroy this ability. Defense against electronic warfare is provided through adherence to communications security procedures and through the application of electronic counter-countermeasures (ECCM).

a. Communications security provides protection against enemy attempts to derive the necessary technical data required to conduct electronic countermeasures (ECM).

b. ECCM provides defense against enemy ECM. Examples of ECM are jamming and deception. Details on ECM and ECCM are contained in FM 32-20 and FM 24-18.

9-6. Area Damage Control

Defense plans include measures for minimizing the immediate effects of mass attacks by nuclear weapons or the effects of natural disasters such as floods or tornadoes. Adequate defense measures preclude secondary damage to personnel, equipment, and installations by followup enemy action such as guerrilla or airborne attack. Area damage control measures include those taken prior to, during, and after such attack or disaster.

a. Measures taken prior to an attack or disaster include—

- (1) Adequate advance planning.
- (2) Organizing, equipping, and training damage control personnel.
- (3) Organizing, equipping, and training an area defense force.
- (4) Provisions for dispersion and concealment.
- (5) Use of natural cover or protection afforded by terrain features.

b. Measures taken during and immediately following a mass destruction attack or natural disaster include—

- (1) Control of both military and civilian personnel and traffic.
- (2) Action against both guerrilla and airborne enemy.
- (3) Fire prevention and firefighting.
- (4) First aid and evacuation of casualties.
- (5) Protection against CBR hazards which includes evacuation of personnel from heavily contaminated areas.
- (6) Distribution of emergency food, clothing, and water supplies.
- (7) Disposal of unexploded ammunition supplies.
- (8) Initiation of salvage operations and clearance of debris and other obstructions from roads and installations so that normal operations may be resumed.

9-7. Demolition

A command responsibility, demolition is usually accomplished on orders from higher headquarters and only as a last resort. When so directed, the company commander establishes a plan for the rapid and thorough destruction of buildings, equipment, supplies, and records. The plan must provide for rendering unserviceable all equipment and supplies that might be used by the enemy, and it should include priorities for demolition and methods of destruction. If explosives are to be used, the plan should show the type and amount and the placement of each charge. Each equipment operator must be familiar with the essential parts of the item of equipment he may be required to destroy. To make cannibalization by the enemy impracticable, the same part of all like equipment should be destroyed.



CHAPTER 10

SAFETY

Section I. AVIATION SAFETY

10-1. General

a. The sole purpose of an aviation safety and accident prevention program is to accelerate accomplishment of the Army aviation mission through improved operation of aircraft. This effort must not restrict the flying mission by inhibiting flying personnel, by unwarranted grounding or restricting of aircraft, or by impractical recommendations requiring actions beyond the limits of available resources.

b. It is essential that positive and viable aviation safety and accident prevention programs be developed at all levels of command. The importance of this program cannot be overemphasized at the company or unit level. The cost of modern aircraft and the expense of training personnel make maximum conservation of these resources a principal consideration in the planning and accomplishment of an aviation safety program. Crew and supervisory errors, the greatest cause factors of aircraft accidents, are the most responsive to command action and offer fertile fields for prevention. These types of aircraft accidents can be substantially reduced by vigorous and astute management of aviation resources through command supervision in all areas, enforced application of safety practices, and a program which will instill into all personnel the need for a positive attitude toward aviation safety.

10-2. Command Responsibility

Aviation safety and accident prevention is a command responsibility and must be integrated into all areas involving the operation, utilization, and maintenance of aircraft. Accident directives must provide adequate safeguards and instructions for the protection of personnel and equipment without reducing mission effectiveness. Areas that a commander must concern himself with include but are not limited to the following:

a. A positive accident prevention effort is documented, published, and incorporated into all operations down through small unit levels.

b. Specific accident prevention and safety functions are delegated to each staff member and first line supervisor within his area of responsibility.

c. Complete and clearly defined standing operating procedures (SOP's) are prepared for all aspects of aviation operations.

d. Sound flight principles and safe practices are followed in all flight operations regardless of mission urgency.

e. All personnel are aware of and comply with unit SOP's, Department of the Army directives, and other applicable directives.

f. A positive plan is developed to insure that mission and aircraft assignments are within aviators' current capabilities.

g. A firm standardization and training program is established to achieve the flight proficiency standards outlined in Army regulations, directives, and flight standardization publications.

h. Immediate action is taken to implement the approved recommendations of aircraft accident boards and investigating officers. Completion of such directives will be reported to the approving headquarters.

i. Immediate and complete action is taken to provide additional information requested by higher headquarters.

10-3. Aviation Safety Officer

a. A unit aviation safety officer should, when possible, be a senior Army aviator, qualified in all unit aircraft, instrument rated, and a graduate of a recognized aviation safety course. Some of the areas a unit aviation safety officer is concerned with are the following:

(1) Assist and advise the commander on all matters pertaining to aviation safety.

(2) Plan, organize, conduct, and supervise the aviation safety phase of the Army Safety Program.

(3) Review, analyze, and develop directives, regulations, and unit SOP's in support of aviation safety.

(4) Monitor all policies, standards, and procedures relating to aviation safety.

(5) Maintain files, records, graphs, and charts of unit aircraft accidents, incidents, forced landings, precautionary landings, and hazard reports.

(6) Conduct periodic aircraft accident prevention surveys, maintain a file of surveys, and make positive recommendations for correction of discrepancies noted.

(7) Coordinate with operations, maintenance, training, and aeromedical personnel to ensure that aviation safety practices are a part of all aviation activities.

(8) Conduct followup actions for all recommendations submitted by aircraft accident investigation boards, aircraft accident prevention councils, and subordinate unit aviation safety officers.

(9) Serve as a consultant to the unit aircraft accident investigation boards and flight evaluation boards.

(10) Be a member of the unit aviation safety council and the unit standardization board.

(11) Organize and conduct aviation safety meetings.

(12) Monitor all aviation training activities and perform spot checks of aviation proficiency in coordination with unit standardization personnel.

(13) Establish and maintain a preaccident plan for his unit.

b. The aviation safety officer assists, advises, and represents the commander in all matters pertaining to aviation safety. His duties include but are not limited to the following:

(1) Maintain close liaison and advise the commander, aviation officer, or command safety director on all matters pertaining to the aircraft accident prevention effort.

(2) Observe flight and ground operations to detect and correct unsafe practices.

(3) Advise and assist the aircraft accident investigation board.

(4) Review aircraft accident reports and recommend corrective action.

(5) Establish, maintain, and rehearse a current preaccident plan.

(6) Inspect communications equipment, navigational aids, and other electronic aids to aircraft operation to ensure required operational condition.

(7) Inspect physical condition of airfields for hazards, recommend improvements, and post all known hazards.

(8) Maintain ready-reference files of aviation safety literature.

(9) Maintain organizational aircraft accident and incident records and statistics.

(10) Review aviator flight records and unit training program to insure that training is directed toward known deficiencies.

(11) Fly as check pilot with crews to determine standardization and operational readiness.

(12) Monitor techniques and proficiency of aircrews in handling weapons and ammunition.

10-4. Aviation Safety Planning

To be effective, an aviation safety program must be well planned, implemented in the company or unit, and supervised by the commander and other personnel responsible for the conduct of the program. Listed below are several means available that will assist in the establishment and conduct of an aviation safety program. They are not all inclusive, but are given to serve as a starting point for unit commanders. Additional details on aviation safety can be found in AF 95-5.

- a. Aviation safety council.
- b. Aircraft accident prevention survey
- c. Aviation safety meetings.
- d. Aviation safety bulletin board.
- e. Monthly weather briefings.
- f. Near-accident flight hazard report system.
- g. Standardization board.
- h. Aviation safety literature.

Section II. GROUND SAFETY

10-5. General

Because accidents and injuries can seriously hamper company operations, an effective ground safety program is essential. The program should encompass all phases of operation. Thorough

training of personnel in the proper handling of materiel and in precautions to be taken when handling or storing hazardous and dangerous materials is essential. All safety rules and practices should be observed by personnel handling tools

and operating machinery. In addition, personnel should be taught the importance of being constantly vigilant so as to detect potential hazards. They should be encouraged to take remedial action when possible to reduce or eliminate danger and they should also be required to report promptly all accidents and safety hazards.

10-6. Safety Committee

To implement a ground safety program, a committee should be established which is headed by a safety officer who is responsible for supervising and coordinating all safety activities. Other members of the committee should consist of certain platoon and section leaders, both commissioned and noncommissioned. The committee should meet at regular intervals to analyze recent accidents and discuss known hazards or faulty working conditions. The committee should then be in a position to make recommendations to the commander for eliminating hazards and improving safety practices to reduce accidents.

10-7. Principles

The following principles of accident prevention must be applied to achieve an effective ground safety program:

a. Active Interest. Vigorous and continuous interest should be placed on safety. Unless all personnel are actively interested and are willing and required to participate in the program, the best safety program will fail. Interest in ground safety may be maintained by appealing to personal pride and stressing the responsibilities each man has to himself and to his unit. Suggestions for making operations safer should be encouraged and such suggestions carefully considered. Individuals making suggestions should be given full credit if the ideas are adopted, or they should be given an explanation if the suggestions are found to be impractical. All members of the unit should be interested in the effect of the accident rate on efficiency and productivity. Interest in the program can be effectively maintained by providing facts and figures to illustrate how accidents can affect the operations of platoons and sections and, conversely, how increased demands on productivity can increase the frequency of ground accidents.

b. Factfinding. Facts to be obtained about each accident include who was injured, what was damaged, time and place the injury or accident occurred, severity, and nature of the accident or injury. For accident prevention purposes, this in-

formation must be supplemented with facts concerning the how and why of the accident. This information includes, in particular, the specific act committed, if any, the reason for its being committed, and the nature of any specific mechanical failure or physical hazard. If a tool or piece of equipment was a contributing factor, a determination should be made whether the proper tool or piece of equipment was being used, whether it was being used properly, and whether the tool or equipment itself could have been defective.

c. Corrective Action. Creating and maintaining an active interest in ground safety helps to prevent accidents. Corrective action to be taken in case of accidents should be based on available and pertinent facts. Near accidents should be reported, along with all available information, so that existing hazards and unsafe procedures or conditions can be eliminated. Similarly, any procedure or condition which might constitute a threat to safety should be reported so that remedial action can be taken. In this regard, some individuals seem to be "accident prone." If experience indicates that the same individual is repeatedly an accident victim, the individual should be assigned where he is least likely to endanger himself and others.

10-8. Safety Plan

Certain elements should be included in any ground safety plan. A few are indicated in the following subparagraphs. This list is neither all-inclusive nor restrictive.

a. Accident Reporting. A definite procedure for reporting ground accidents should be established. This should include the preparation and submission of DA Form 285, (Accident Report) in accordance with AR 385-40. Promptness and completeness in reporting all accidents or injuries, no matter how slight, should be emphasized in the procedure.

b. Determination of Cause. The commanding officer, or a person delegated by him, should investigate all injuries or accidents to determine their cause and take corrective action to prevent their recurrence.

c. Damage of Equipment. Any accident that results in damage to equipment should be reported immediately. Continuing to operate damaged equipment can result in injuries to personnel.

d. Fire Prevention. In order to prevent accidents in fire hazard areas and high fire risk activities, commanders should insure that—

(1) Fueling operations are conducted under the guidance of a qualified supervisor. Safety precautions in fuel handling activities should include as a minimum the following principles:

(a) Proper maintenance of fuel dispensing equipment, to include daily inspection of hoses for leaks and deterioration.

(b) Prohibition of dispensing fuel inside buildings or in fire hazard areas.

(c) Rigid enforcement of the requirement to manually hold the dispensing nozzle level in an open position to prevent fuel overflow or spillage.

(d) Assurance that internal combustion engines, electric motors, and radio equipment are turned off while refueling (except in situations of tactical necessity).

(e) Electric bonding of dispensing unit; hose and nozzle must be checked periodically by means of continuity tests.

(f) Grounding procedures must be adhered to.

(g) Fuel tank filler caps must be replaced instantly upon completion of refueling.

(2) The fuel storage area is posted with standard signs as a "restricted" area and a "no smoking" area. The storage area should be inspected periodically by the fire department for fire and explosion hazards and combustible vapors. All petroleum handling personnel will be familiar with the provisions of the area fire plan and the operation of all fire extinguishers provided for the area.

(3) Firefighting equipment is readily available and that all personnel are familiar with its location and operation. Firefighting equipment should be inspected according to prescribed schedules and procedures.

(4) Smoking is permitted only in designated safety areas that have been posted and clearly defined.

e. Tools and Equipment. Frequent inspections of all tools and equipment should be made for such defects as frayed electrical cords, cracked or splintered handles, and dull cutting edges. Electric

cal equipment should be properly grounded at all times during its operation.

f. Vehicle Operation. Personnel who qualify should be trained to drive any vehicle or materials handling equipment so that they can operate this equipment safely at all times.

g. Special Clothing and Equipment. Personnel should be thoroughly familiar with the use, location, care, and inspection of any special clothing or equipment which they may be required to use. Moreover, the use of special clothing or equipment should be rigidly adhered to when the nature of the job requires such use.

10-9. Special Precautions

Special techniques are required in many operations if they are to be performed safely. In addition, most tools and equipment require special handling if they are to be used safely. Personnel performing the operations or using the tools and equipment must be properly trained to avoid injuries, loss of efficiency, and damage to materials and facilities. Appropriate technical manuals and bulletins provide information on the safe use of tools and equipment. This information should be stressed during training.

a. Gasoline and other petroleum products, through their properties and characteristics, are the greatest potential hazards to safety. TM 10-1101 outlines the characteristics of petroleum handling equipment and methods of operation. All personnel should be familiar with the provisions of this technical manual.

b. During a nuclear, atomic, or other attack, many items with which personnel may come in contact may be potentially hazardous. Precautions to be taken depend on the hazard involved. Personnel should be thoroughly trained in and familiar with safety precautions relating to the handling of such materiel, in accordance with AR 220-58.

APPENDIX A

REFERENCES

A-1. Army Regulations

59-106	Operation of Air Force Air Terminals.
65-75	Unit Mail Services.
95-1	Army Aviation—General Provisions.
95-5	Aircraft Accident Prevention, Investigation, and Reporting.
220-45	Duty Rosters.
220-58	Organization and Training for Chemical, Biological, and Radiological (CBR) Operations.
230-21	Accounting Procedures for Nonappropriated Unit Funds, Inmates' Welfare Funds, Stockage Welfare Funds, and Commandants' Welfare Funds.
310-25	Dictionary of United States Army Terms.
310-50	Authorized Abbreviations and Brevity Codes.
385-40	Accident Reporting and Records.
600-6	Individual Sick Slip.
600-200	Enlisted Personnel Management System.
611-103	Officer Qualification and Classification.
672-5-1	Awards.
750-8	Command Maintenance Management Inspections (CMMI).

A-2. Field Manuals

1-15	Aviation Battalion, Group, and Brigade.
1-60	Army Air Traffic Operations.
1-100	Army Aviation Utilization.
1-105	Army Aviation Techniques and Procedures.
12-2	Adjutant General Support in Theaters of Operations.
14-3	Comptroller Support in Theaters of Operations.
14-8	Class A Agent Officers.
21-5	Military Training Management.
21-6	Techniques of Military Instruction.
23-65	Browning Machinegun, Caliber .50 HB, M2.
24-18	Field Radio Techniques.
31-11	Doctrine for Amphibious Operations.
31-12	Army Forces in Amphibious Operations (The Army Landing Force).
31-16	Counter guerrilla Operations.
31-22	U.S. Army Counterinsurgency Forces.
31-81	Base Defense.
31-85	Rear Area Protection (RAB) Operations.
(C) 32-5	Signal Security (SIGSEC) (U).
(C) 32-20	Electronic Warfare (Ground Based) (U).
55-1	Transportation Services in a Theater of Operations (to be published).
55-10	Army Transportation Movements Management.
55-60	Army Terminal Operations.
57-35	Airmobile Operations.
100-27	US Army/US Air Force Doctrine for Tactical Airlift Operations.

101-5	Staff Officer's Field Manual; Staff Organization and Procedure.
(C) 101-20	United States Army Aviation Planning Manual (U).

A-3. Technical Manuals (TM)

10-1101	Petroleum Handling Equipment and Operations.
55-450-8	Air Transport of Supplies and Equipment: External-Transport Procedures.
55-450-11	Air Transport of Supplies and Equipment: Helicopter External Loads Rigged with Air Delivery Equipment.
55-450-12	Air Transport of Supplies and Equipment: Helicopter External Loads for Sling, Nylon and Chain, Multiple Leg (15,000-Pound Capacity).
55-450-15	Air Movement of Troops and Equipment (Administrative).
55-1100-series	Air Transport Procedures.

A-4. Army Training Program (ATP)

21-114	Male Military Personnel Without Prior Service.
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A-5. Department of the Army Pamphlets (DA Pam)

35-1	Pay Guide for Small Unit Commanders.
310-series	Military Publication Indexes.
350-14	Guide for Commanders of Company Size Units.

A-6. Tables of Organization and Equipment (TOE)

1-256	Headquarters and Headquarters Company, Combat Aviation Battalion.
1-258	Assault Support Helicopter Company.
1-407	Aviation Service Support Company.
8-660	Medical Department Organization, Medical Evacuation Teams.
29-500	Composite Service Organizations.
55-118	Transportation Terminal Transfer Company.
55-259	Heavy Helicopter Company.
55-580	Transportation Movement Control Teams.

A-7. Forms

DA Form 6	Duty Roster.
DA Form 20	Enlisted Qualification Record.
DA Form 66	Officer Qualification Record.
DA Form 285	Accident Report.
DA Form 2028	Recommended Changes to Publications.
DA Form 2166.4	Enlisted Efficiency Report.
DD Form 285	Appointment of Military Postal Clerk, Unit Mail Clerk, or Mail Orderly.
DD Form 689	Individual Sick Slip.
DD Form 1384	Transportation Control and Movement Document.

A-8. DOD Regulation

4500.32-R	Military Standard Transportation and Movement Procedures (MILST-AMP).
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APPENDIX B

LIAISON OFFICER'S GUIDE

B-1. General

When an Army unit providing combat service support airlift is assigned an airlift mission, the commander will promptly establish liaison with the supported unit. Liaison is essential to insure proper planning between the participating units.

B-2. Planning Guide

The following liaison officer's guide is provided to assist in coordinating and executing successful airlift missions. However, the guide can only provide a representative listing of applicable factors. It must be recognized that each mission presents individual problems that require coordination and solving before the actual operation.

a. Supported unit.

b. Contact officer (supported unit liaison officer).

- (1) Location.
- (2) Time to be contacted.

c. Type of mission (troop movement, cargo airlift, unit airlift).

- (1) Ground tactical plan of supported unit.
- (2) Intelligence.
 - (a) Enemy (ground and air).
 - (b) Friendly (ground and air).
- (3) Strong points (antiaircraft, troops, armor).

d. Determination of aircraft requirements (type, composition of force).

e. Plan of execution.

- (1) Time.
- (2) Suggested flight routes.
- (3) Flight altitude to be flown.
- (4) Departure points, checkpoints, and release point.
- (5) Communications for flight control.
- (6) Coordination with supporting elements (weather forecaster, friendly fire support, traffic regulation, terminal forces).

f. Loading area.

- (1) Coordinates.

(2) Description.

(3) Marking loading areas.

(4) Ground control frequencies and call signs.

(5) Officer in charge.

(6) Loading plan.

(a) General plan.

(b) Time of loading.

(c) Priorities.

(d) Aircraft chalking and marking procedures.

(e) Traffic pattern.

(f) Manifesting and documentation procedures and responsibility for preparation.

(g) Personnel and cargo properly positioned and secured in aircraft.

(h) Safety factors involved.

g. Landing area.

(1) Coordinates.

(2) Description.

(3) Marking landing sites.

(4) Ground control frequencies and call signs.

(5) Traffic pattern.

(6) Unloading plan.

(a) Unloading procedures.

(b) Time of unloading.

(c) Safety precautions.

h. Refueling facilities.

(1) Location.

(2) Capabilities, requirements, and procedures.

i. Alternate plan to cover:

(1) Weather abort.

(2) Mechanical abort.

(3) Loss of communication.

(4) Enemy action.

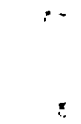
(5) Alternate flight routes.

(6) Spare aircraft allocated and procedures for employment.

j. Arrangement for up-to-date weather information and briefing.

k. Mission debriefing.

l. Rehearsals and training procedures.



APPENDIX C

AIRCRAFT REQUIREMENTS AND REQUEST FOR ARMY AIR AMBULANCE SUPPORT

Section I. DETERMINING AIRCRAFT REQUIREMENTS

C-1. General

a. To determine the number of aircraft required for a mission, the types and characteristics of available aircraft must be considered in relation to the following:

(1) Cargo carrying characteristics.

(a) Size and location of cargo door and height above ground.

(b) Size and shape of cargo compartment and limiting features.

(c) Floor strength and location and strength of tiedown fittings.

(d) Location and number of troop seats.

(e) Forward and aft center of gravity.

(2) Allowable cargo load. The weight in pounds of personnel and cargo that an aircraft can airlift for a specific mission (allowable cargo load) is provided by the air transport commander based on technical considerations.

(3) Weight and dimensions of commodity to be airlifted.

b. For Army combat support and combat service support airlift, the standard weights for individuals are as shown below. These weights take into consideration the weight of the man, plus his combat weight and his share of table of organization and equipment (TOE) equipment that is hand-carried.

(1) Aircraft crewman, 200 pounds.

(2) Combat-equipped soldier, 240 pounds.

(3) Litter patient, 250 pounds.

c. The size and shape of individual items of cargo are particularly important when Army transport aircraft are providing the airlift. The interior cabin space of these aircraft is limited in comparison to the larger transport aircraft operated by the Air Force. Items of cargo whose dimensions exceed the interior cabin space may be airlifted externally by Army transport helicopters.

d. Considering the above factors, aircraft requirements can be determined by the weight or type load method.

C-2. Weight Method

The weight method is used for estimating aircraft requirements to transport large amounts of supplies, general cargo, and personnel. This method is based on the assumption that total weight is the determining factor. The weight method is not accurate for unit movements that necessitate maintaining unit integrity and airlifting major items of equipment. A sample application of the weight method follows:

Weight to be transported, 79,000 pounds.

Allowable cargo load per aircraft, 11,000 pounds.

$$\frac{79,000}{11,000} = 7.18 \text{ or } 8 \text{ aircraft required.}$$

C-3. Type Load Method

a. The type load method is based on arranging combination loads of men, equipment, and cargo within the allowable cargo load limit of the aircraft. This method is particularly useful for airlifting small units or elements with their equipment and maintaining unit integrity. Listed below are four sample type loads:

Type 1: two ¼-ton trucks
three men

Type 2: one ¼-ton truck
one ¼-ton trailer (loaded)
four men

Type 3: one ¼-ton truck
two ¼-ton trailers
nine men

Type 4: one ¼-ton truck
one 106-mm rifle (truck-mounted)
two rounds of 106-mm ammunition
10 men

b. Normally, each aircraft transporting a type load is identified by a chalk number marked on the fuselage. The aircraft then become identified as chalk number 1, 2, etc. This permits the personnel who are to be airlifted to more easily identify the aircraft assigned a particular type load.

C-4. Space Method

a. The space method is a desirable method of rapidly computing aircraft requirements in air-mobile operations for personnel, weapons, ammunition, and vehicles since the process provides a safety factor. The majority of the computations remain constant and overall planning time is decreased.

Note. This method can only be used when size and weight of equipment to be transported is compatible with the type of aircraft to be used; for example, a ¼-ton truck with 106-mm recoilless rifle mounted cannot be moved by a UH-1D.

b. A space is defined as the weight of a fully combat equipped soldier and is used as a denominator to convert the weight of major items of equipment and accompanying supplies into a common factor. A space is considered to be 240 pounds.

c. To determine the number of spaces each aircraft can provide, divide the allowable cargo load by 240. In converting allowable cargo loads to spaces, consider only half or whole spaces. Fractions will be reduced to the next lower half or whole space; for example, 22.8 becomes 22.5, 24.3 becomes 24.

d. Convert major items of equipment such as vehicles, trailers, or heavy weapons into spaces by dividing the weight of each item by 240. If two or more items of the same type are to be transported, multiply the spaces required for a single item by the number of items. Convert additional assault supplies not carried by the individual soldier

into spaces by dividing their total weight by 240. In converting weight to spaces, consider only whole or half spaces by carrying fractions to the next higher half or whole space; for example, 10.1 becomes 10.5, 11.6 becomes 12.0.

e. Example of using space method:

(1) Allowable cargo load, UH-1D, for 50 nautical radius equals 2,600 pounds.

$$\frac{2,600}{240} = 10.8 \text{ or } 10.5 \text{ spaces}$$

(2) Personnel and equipment to be transported and spaces required:

(a) 174 personnel @ 240 pounds each = 41,760 pounds. Spaces required

$$\frac{41,760}{240} = 174.0$$

(b) Three each ¼-ton trucks @ 2,600 pounds each = 7,800 pounds. Spaces required

$$\frac{7,800}{240} = 32.5$$

(c) Three each ¼-ton trailers @ 900 pounds each (loaded) = 2,700 pounds. Spaces required

$$\frac{2,700}{240} = 11.2 \text{ or } 11.5$$

(d) Weight of supplies on initial lift 3,500 pounds. Spaces required

$$\frac{3,500}{240} = 14.6 \text{ or } 15.0$$

(3) Required spaces, total of e(2)(a), (b), (c), and (d) above, = 233.0.

(4) Required UH-1D helicopters

$$\frac{233 \text{ spaces required}}{10.5 \text{ spaces for each UH-1D}} = 22.1 \text{ or } 23 \text{ helicopters.}$$

Section II. FORMAT FOR REQUEST OF ARMY AIR AMBULANCE SUPPORT

C-5. Request Procedures

a. All requests for Army air ambulance support should include the following items in the sequence discussed, but need not be limited to only those elements shown:

(1) Location. If grid coordinates are used, they should contain six digits and be preceded by the 100,000 meter grid designator.

(2) Radio frequency and call sign. The frequency and call sign should be that of the radio at the patient's location and not a relay frequency.

Note. The location, call sign, and radio frequency should always be transmitted first. This information enables the Army air ambulance to begin the mission and precludes unnecessary delay should the other information not be immediately available, both in helicopter reaction time and in cases of communication breakdown.

(3) Patient category of precedence; for example, urgent, priority, routine.

(a) *Urgent.* Emergency cases which must be evacuated immediately to save life or limb. This precedence will be used when it is anticipated that the patient's condition is such that evacuation is required within 2 hours. Psychiatric cases are not considered in this category.

(b) *Priority.* Patients requiring prompt medical care not locally available. This precedence will be used when it is anticipated that the patient must be evacuated within 4 hours or his medical condition will deteriorate to the degree that he will become an urgent case. Psychiatric patients are not considered in this category.

(c) *Routine.* Patients requiring evacuation but whose condition is not expected to deteriorate significantly during the first several hours or longer.

(d) *Tactical urgent.* It is sometimes necessary to clear patients from an area of operation because of the tactical situation. When such situations develop, medical evacuation will be requested by using the precedence code above, giving the total number of patients to be cleared from the area. This will be followed by a statement that the *tactical urgency* dictates the mission. Commanders will not use this procedure solely for the purpose of clearing priority and routine patients from their area of operation when the tactical situation does not require their immediate evacuation.

(4) Number of patients by type; for example, litter or ambulatory.

(5) Security of pickup site. Significant infor-

mation on enemy location and/or weaponry, if available, should be noted here.

(6) Type of wound, injury, or illness.

(7) Method of marking pickup site.

(8) Special equipment (for example, hoist) or emergency medical supplies required.

(9) Weather at pickup site.

(10) Patient nationality.

b. Upon receipt of a mission request, the operations officer, clerk, or evacuation pilot coordinates the flight route and secures airspace clearance from the division base airfield or the flight operations center. Detailed information should be included in the SOP (FM 1-60 and FM 1-105).

c. When air ambulance service is not available, the medical battalion commander or his representative requests the use of nonmedical aircraft from the division aviation officer.



APPENDIX D**STANAG 3117, AIRCRAFT MARSHALLING SIGNALS**

NATO UNCLASSIFIED**STANAG 3117 (Edition No. 3)****DETAILS OF AGREEMENT (DofA)**
AIRCRAFT MARSHALLING SIGNALS

Annex : A (DofA) Section 1—General Aircraft Marshalling Signals for all Aircraft.

Section 2—Special Signals for Controlling Aircraft Operating from Ships.

Section 3—Special Aircraft Marshalling Signals for Hovering, VTOL and Cushion Aircraft.

Section 4—Distinctive Garment to be Worn by Aircraft Marshallers.

AGREEMENT

1. Participants agree that the aircraft marshalling signals attached at Annex A will be used by all their NATO Forces.
2. They agree that their aircraft marshallers will wear the distinctive garment as described in section 4 with the exception that the distinctive garment will not be required for airfields, airstrips, helipads and heliports used by tactical Army aircraft.

IMPLEMENTATION OF THE AGREEMENT

3. All nations agree that implementation will occur on the date that national orders and national standards as appropriate are issued in accordance with this agreement. Material not in conformance with Section 4 need not be retrofitted.

NATO UNCLASSIFIED

NATO—UNCLASSIFIED

ANNEX A TO DETAILS OF AGREEMENT OF STANAG 3117
(Edition No. 3)

Section 1

GENERAL AIRCRAFT MARSHALLING FOR ALL AIRCRAFT

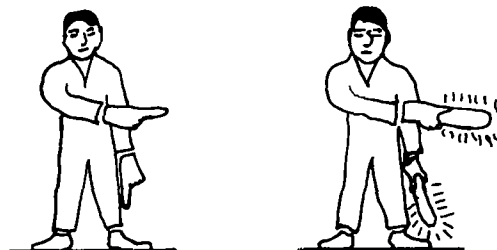
NOTE:

1. The signals to an aircraft on movement areas are designed for use by the marshaller facing the aircraft in a position:
 - a. for fixed wing aircraft, forward of the left wing tip within view of the pilot; and
 - b. for helicopters, where he can best be seen by the pilot.
2. For night operations, the wands should not be too bright and used in pairs of the same color.
3. The signals listed below may be used by the pilot as appropriate, using the signal in a similar way to that indicated.

1-1 PROCEED TO NEXT MARSHALLER

Right or left arm down, other arm moved across the body and extended to indicate direction of next marshaller.

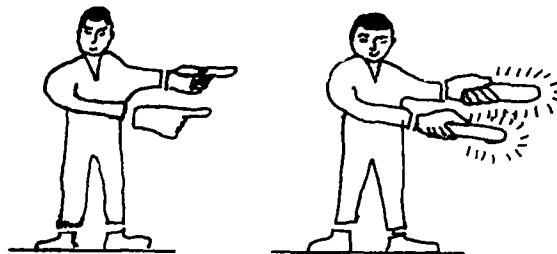
No equivalent ICAO signal



Signal 1-1

Alternate Signal:

One arm extended and the other across the chest with both hands pointed to indicate direction of next marshaller.



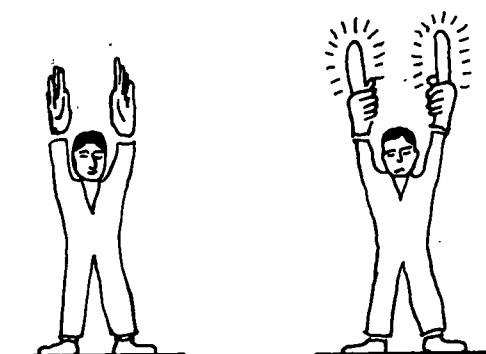
Alternate signal 1-1

NATO—UNCLASSIFIED

NATO—UNCLASSIFIED**1-2 THIS MARSHALLER**

Arms above head in vertical position with palms facing inward.

Conforms to ICAO signal "THIS WAY"

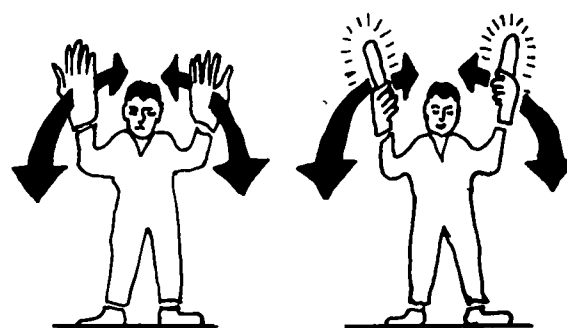


Signal 1-2

1-3 MOVE AHEAD

Arms a little aside, palms facing backwards and repeatedly moved upward-backward from shoulder height.

Conforms to ICAO signal

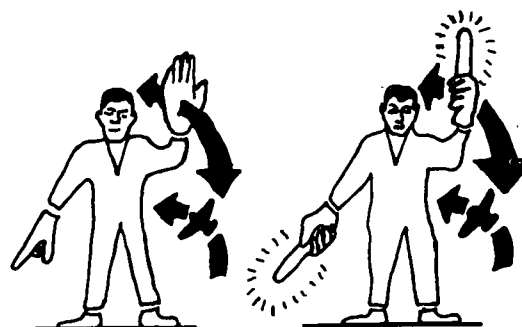


Signal 1-3

1-4 TURN**a. TURN TO PORT (LEFT)**

Point right arm downward, left arm repeatedly moved upward-backward. Speed of arm movement indicating rate of turn.

Conforms to ICAO signal



Signal 1-4a

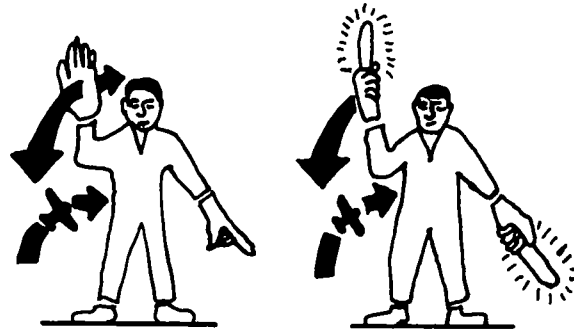
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b. TURN TO STARBOARD (RIGHT)

Point left arm downward, right arm repeatedly moved upward-backward. Speed of arm movement indicating rate of turn.

Conforms to ICAO signal

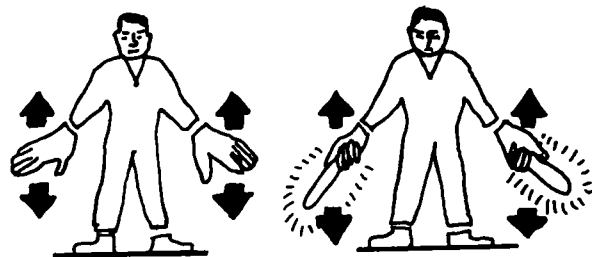


Signal 1-4b

1-5 SLOW DOWN

Arms down with palms toward ground, then moved up and down several times.

Conforms to ICAO signal

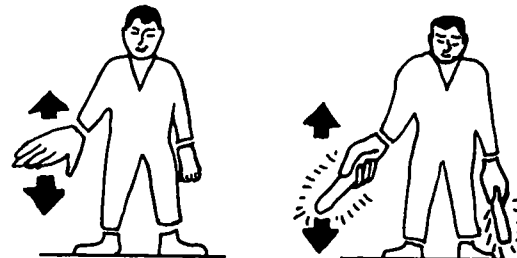


Signal 1-5

1-6 SLOW DOWN ENGINE(S) ON INDICATED SIDE

Arms down with palms toward ground, then either right or left arm moved up and down indicating that left or right side engines respectively should be slowed down.

Conforms to ICAO signal

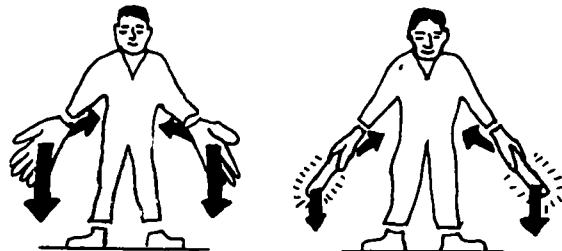


Signal 1-6

1-7 ROLL BACK (ALSO USED TO PULL BACK AIRPLANE UTILIZING ARRESTING WIRE)

Arms down, palms open facing forward, sweeping backwards and forwards movement with the arms.

Conforms to ICAO signal



Signal 1-7

NATO—UNCLASSIFIED

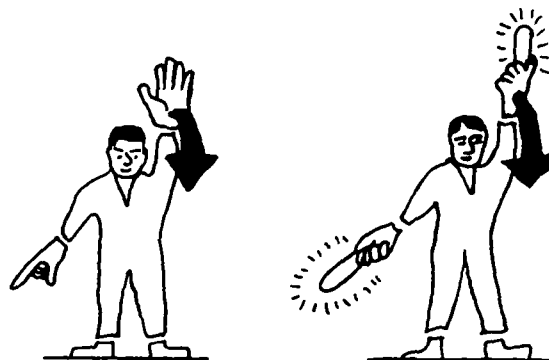
NATO—UNCLASSIFIED

1-8 TURNS WHILE BACKING

a. TAIL TO PORT (LEFT)

Point right arm down and left arm brought from overhead, vertical position to horizontal forward position, repeating left arm movement.

Conforms to ICAO signal

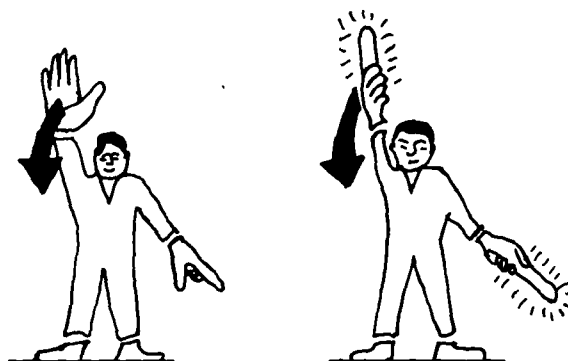


Signal 1-8a

b. TAIL TO STARBOARD (RIGHT)

Point left arm down and right arm brought from overhead, vertical position to horizontal forward position, repeating right arm movement.

Conforms to ICAO signal



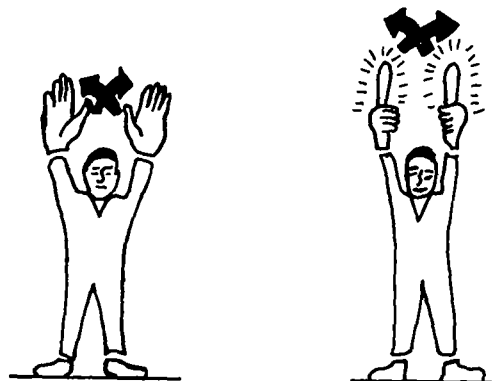
Signal 1-8b

1-9 STOP

Arms repeatedly crossed above head (the rapidity of the arm movement should be related to the urgency of the stop i.e., the faster the movement the quicker the stop).

Conforms to ICAO signal

NOTE: Optional for Naval use. See also Signal Number 2-4.



Signal 1-9

NATO—UNCLASSIFIED

NATO—UNCLASSIFIED

1-10 BRAKES

a. ON

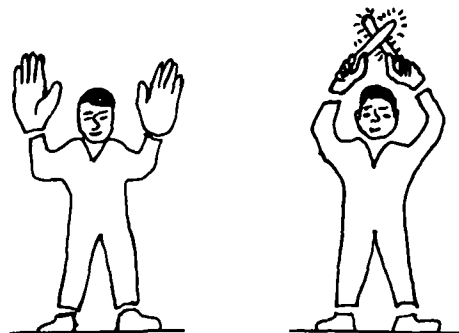
DAY—Open palm and fingers raised with palm toward aircraft, then fist clenched.

NIGHT—Crossed wands.

b. OFF

DAY—Reverse of above

NIGHT—Crossed wands, uncrossed.

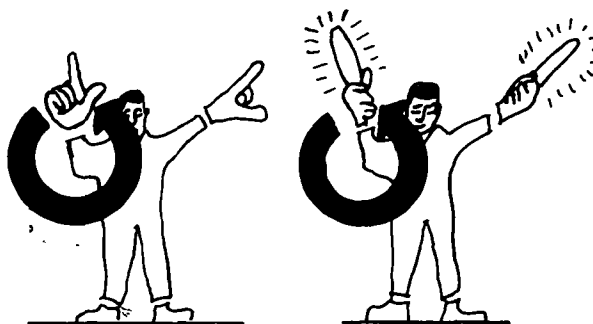


Signal 1-10

1-11 START ENGINE(S)

Circular motion in vertical plane of right hand at head level with left arm pointing to engine.

Conforms to ICAO signal

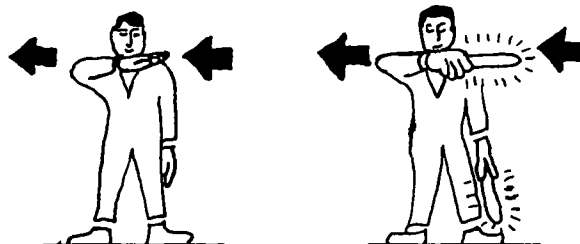


Signal 1-11

1-12 CUT ENGINE(S)

Either arm and hand level with shoulder, hand moving across throat, palm downward.

Conforms to ICAO signal



Signal 1-12

NATO—UNCLASSIFIED

NATO—UNCLASSIFIED

1-13 AUXILIARY POWER UNIT

a. CONNECTED

Hands above head, left fist partially clenched, right hand moved in direction of left hand with first two fingers extended and inserted into circle made by fingers of the left hand.



Signal 1-13a

b. DISCONNECTED

Hands above head, left fist partially clenched, right hand moved away from left hand, withdrawing first two fingers from circle made by fingers of the left hand.

No ICAO signal



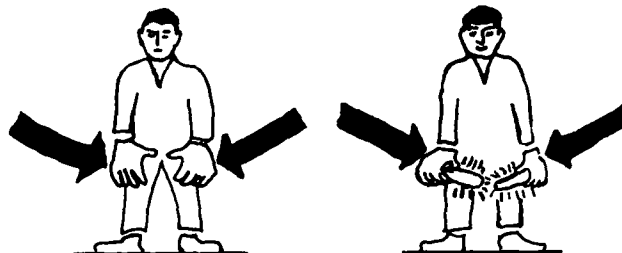
Signal 1-13b

1-14 CHOCKS (and/or HELICOPTER TIE DOWNS)

a. INSERT CHOCKS

Arms down, fists closed, thumbs extended inwards swinging arms from extended position inwards.

Conforms to ICAO signal



Signal 1-14a

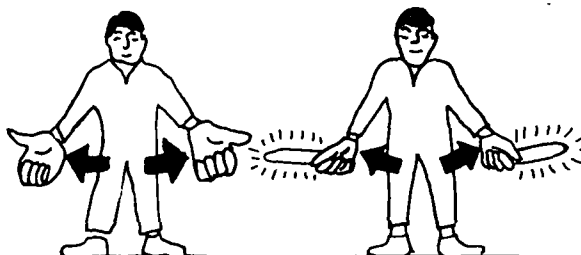
NATO—UNCLASSIFIED

NATO—UNCLASSIFIED

b. REMOVE CHOCKS

Arms down, fists closed, thumbs extended outwards swing arms outwards.

Conforms to ICAO signal



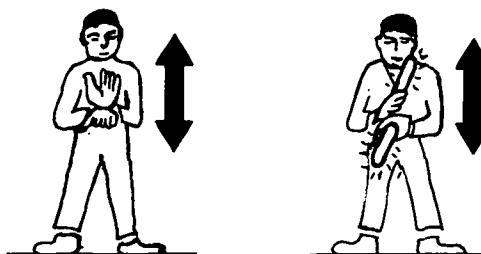
Signal 1-14b

1-15 FLAPS

a. LOWER WING FLAPS

Hands in front, palms together horizontally then opened from the wrist alligator-mouth fashion.

No equivalent ICAO signal

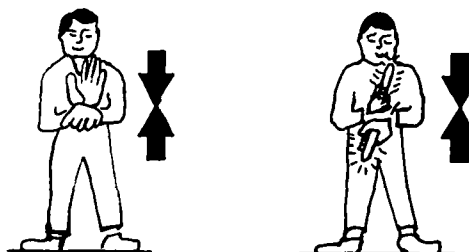


Signal 1-15a

b. RAISE WING FLAPS

Hands in front, horizontally, with palms open from the wrists, then suddenly closed.

No equivalent ICAO signal



Signal 1-15b

NATO—UNCLASSIFIED

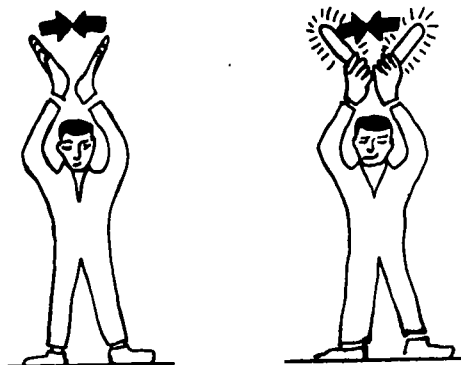
NATO—UNCLASSIFIED

1-16 TAIL WHEEL

a. LOCK

Hands together overhead, palms open from the wrists in a vertical V, then close suddenly.

No equivalent ICAO signal

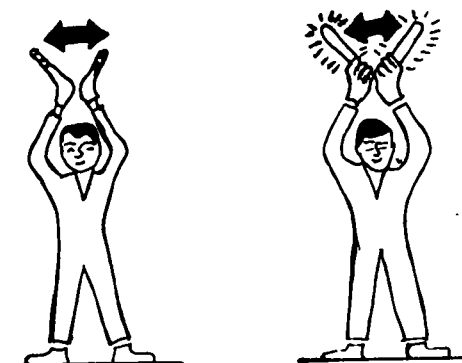


Signal 1-16a

b. UNLOCK

Hands overhead, palms together then opened from the wrists to form a vertical V.

No equivalent ICAO signal



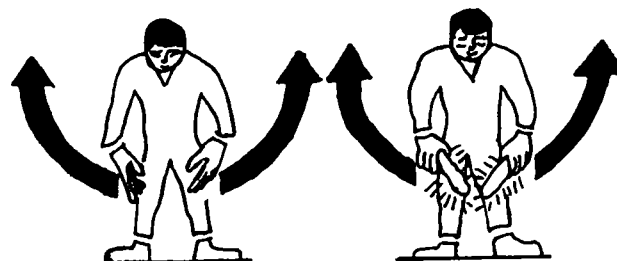
Signal 1-16b

1-17 BOMB BAY

a. OPEN

Hand to be held with fingertips touching in front of the body, then swung down and outwards.

No equivalent ICAO signal



Signal 1-17a

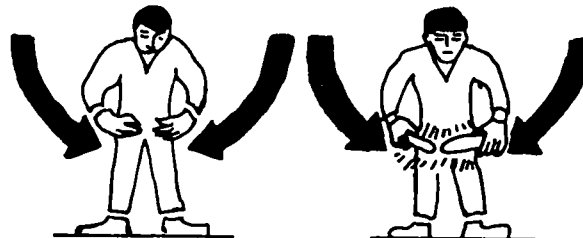
NATO—UNCLASSIFIED

NATO—UNCLASSIFIED

b. CLOSE

Arms to be extended, then swung downward and in until fingertips touch in front of the body with elbows bent at approximately 45 degrees.

No equivalent ICAO signal



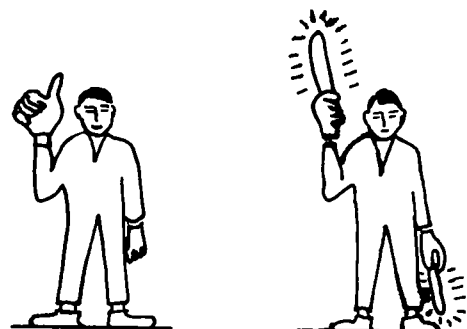
Signal 1-17b

1-18 SIGNALS FOR GENERAL USE

a. AFFIRMATIVE SIGNAL

Hand raised, thumb up.

No equivalent ICAO signal

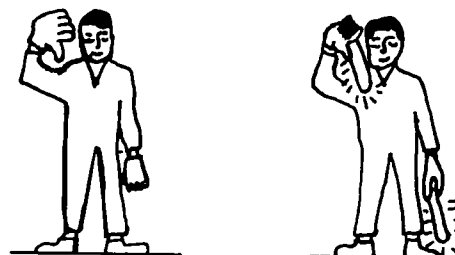


Signal 1-18a

b. NEGATIVE SIGNAL

Hand raised, thumb down.

No equivalent ICAO signal



Signal 1-18b

NATO—UNCLASSIFIED

NATO—UNCLASSIFIEDSection 2ADDITIONAL SIGNALS FOR CONTROLLING
AIRCRAFT OPERATING FROM SHIPS

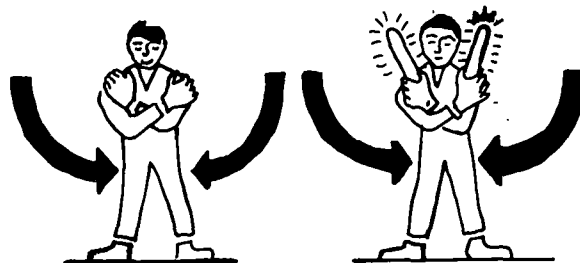
The following procedures and signals are provided for landing and operating aircraft on ships and for ground control of aircraft at Naval Air Stations in addition to those contained in Sections I and III:

A. Signals for Controlling Conventional fixed wing Aircraft.

2-1 WINGS

a. FOLD WINGS

Arms straight out at sides, then swept forward and hugged around shoulders.

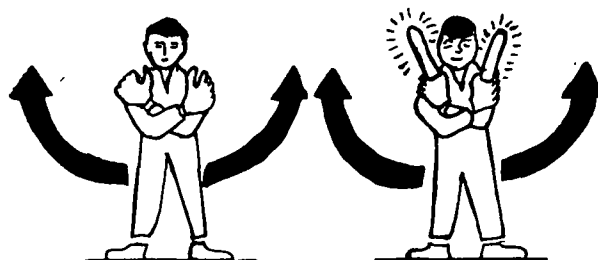


Signal 2-1a

b. SPREAD WINGS

Arms hugged around shoulders, then swept straight out to the sides.

No equivalent ICAO signal

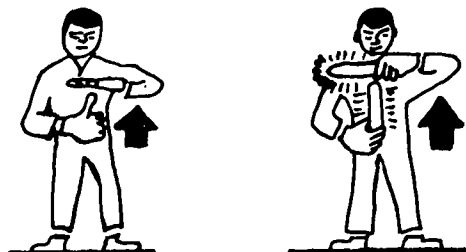


Signal 2-1b

2-2 TAIL HOOK

a. UP HOOK

Right fist, thumb extended upward, raised suddenly to meet horizontal palm of left hand.



Signal 2-2a

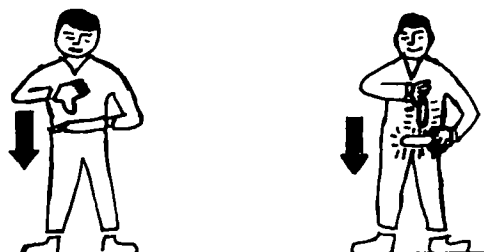
NATO—UNCLASSIFIED

NATO—UNCLASSIFIED

b. DOWN HOOK

Right fist, thumb extended downward, lowered suddenly to meet horizontal palm of left hand.

No equivalent ICAO signal

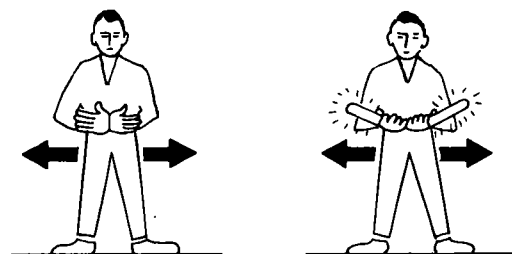


Signal 2-2b

2-3 DIVE BRAKES

a. OPEN DIVE BRAKES

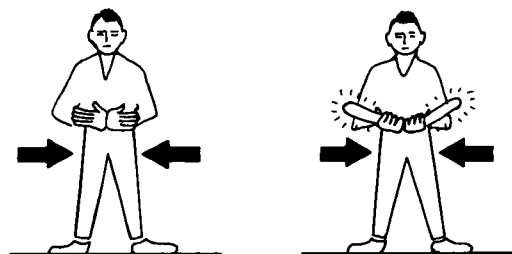
Hands in front, palms together vertically, then opened from the wrists alligator-mouth fashion.



Signal 2-3a

b. CLOSE DIVE BRAKES

Hands in front, vertically with palms open from wrists, then suddenly closed.



Signal 2-3b

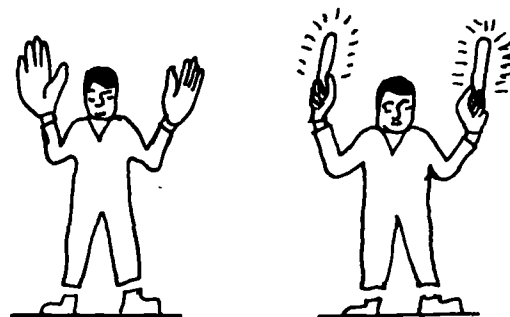
NATO—UNCLASSIFIED

NATO—UNCLASSIFIED

2-4 STOP

Raise both hands to eye level, elbows flexed, palms toward pilot, in a simple policeman's stop.

NOTE. See signal 1-9



Signal 2-4

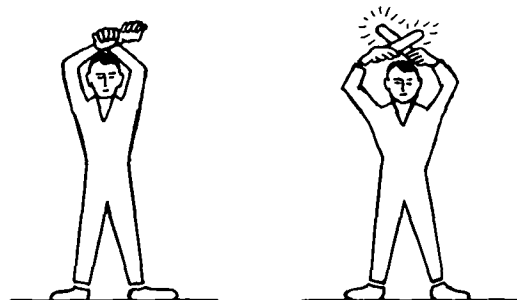
2-5 EMERGENCY STOP

a. DAY:

Cross forearms overhead with fists clenched.

b. NIGHT:

Cross the night signalling wands.

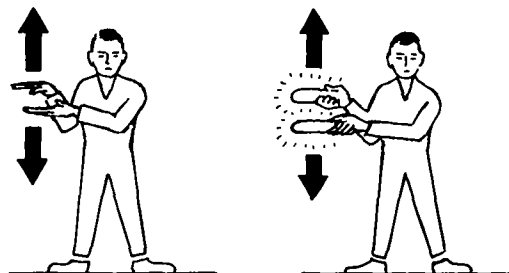


Signal 2-5

2-6 ROCKET PODS

a. OPEN ROCKET PODS

Right arm extended with palm down. Left arm extended with palm up and about six inches directly below right hand.



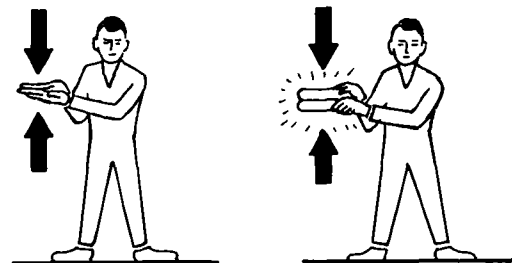
Signal 2-6a

NATO—UNCLASSIFIED

NATO—UNCLASSIFIED

b. CLOSE ROCKET PODS

Same as "Open Rocket Pods", but with hands brought together.



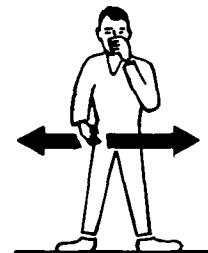
Signal 2-6b

2-7 TILLER BAR/STEERING ARM IN PLACE

Hold nose with left hand right hand moving horizontally at waist level.

a. A "thumbs up" immediately following signals means: MAN IS TENDING BAR.

b. A "thumbs down" immediately following signal means: NO ONE TENDING BAR.



Signal 2-7

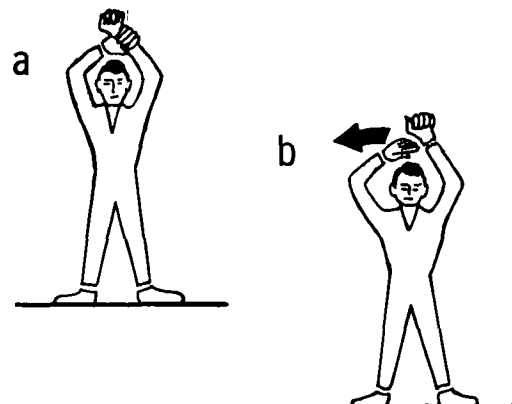
2-8 DOWNLOCKS

a. INSTALL DOWNLOCKS

Clasp forearm with hand.

b. REMOVE DOWNLOCKS

Unclasp hand from forearm.



Signal 2-8

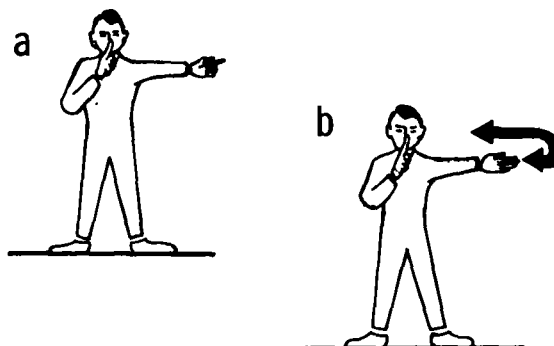
NATO—UNCLASSIFIED

NATO—UNCLASSIFIED**2-9 ENGAGE NOSEGEAR STEERING**

a. Point to nose with index finger while indicating direction of turn with other index finger.

DISENGAGE NOSEGEAR STEERING

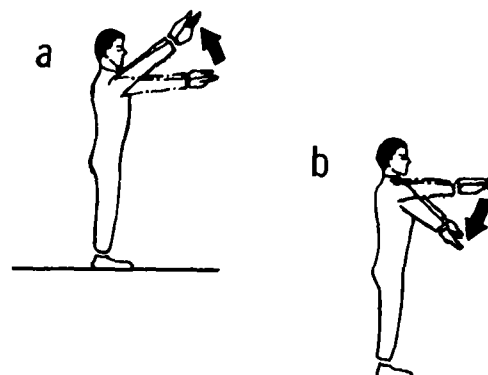
b. Point to nose with index finger, lateral wave with open palm of other hand at shoulder height.

*Signal 2-9***2-10 WING POSITION****a. WING UP**

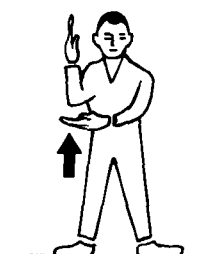
Both arms extended horizontally in front of body, palms down. Raise arms to 45 degree angle.

b. WING DOWN

Reverse "WING UP" signal.

*Signal 2-10***2-11 LOCK WINGS**

Hit right elbow with palm of left hand.

*Signal 2-11*

Numbers 12 through 20 have not been assigned.

NATO—UNCLASSIFIED

NATO—UNCLASSIFIED

B. Signals for controlling Hovering aircraft.

2-21 REMOVE BLADE CUFFS

Red flag held in left hand above head, right hand pointing to individual boots for removal.



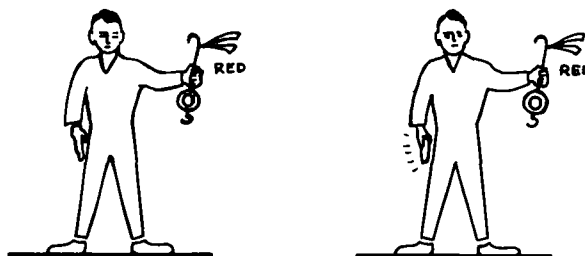
Signal 2-21

2-22 READY FOR TAKE-OFF

Thumb extended at eye level.



Signal 2-22

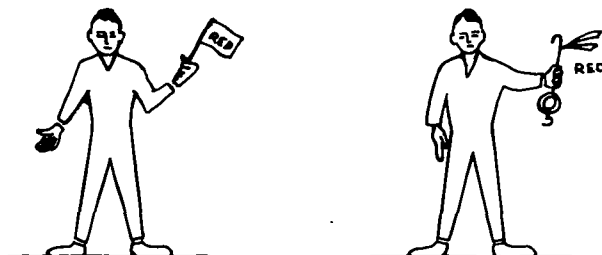


Signal 2-23

2-23 REELMEN SHOW REELS TO PILOT AND DIRECTOR

Reelmen (2 or 3, as applicable) remove tie-downs and move forward into full view of pilot and director with red-pennanted tie-downs held aloft. Director hold red flag in left hand over head and gives "thumbs-up" by right hand held extended at his side.

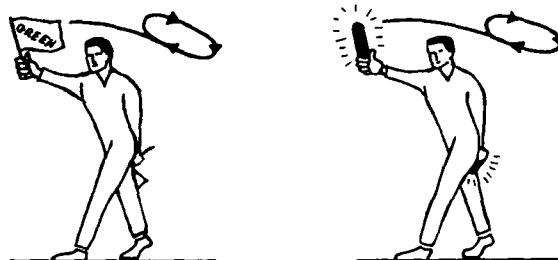
IMPORTANT: Without tie-downs, helicopter may start to overturn, in heavy seas. "Thumbs-up" indicates to pilot that he could now make emergency take-off.



NATO—UNCLASSIFIED**2-24 TAKE-OFF**

DAY—Director conceals red flag in left hand and makes circular motion of green flag in right hand over head in horizontal plane ending in a throwing motion of arm toward direction of take-off.

NIGHT—Use red and green wands rather than flags.

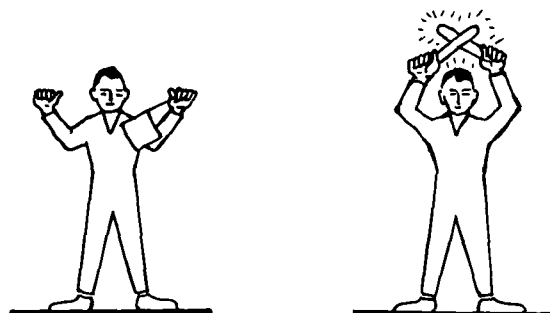


Signal 2-24

2-25 HOLD POSITION

DAY—Fists clenched at eye level, regardless of color of flag held.

NIGHT—Crossed wands over head, Director crosses two wands held regardless of color.

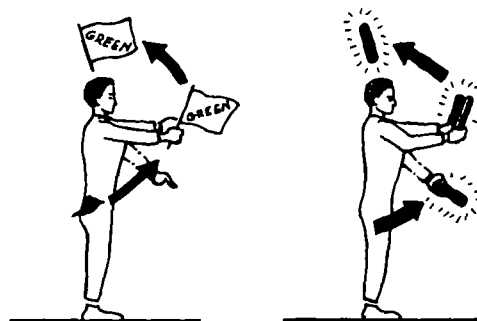


Signal 2-25

2-26 LANDING DIRECTIONS

DAY—Director places back to wind and faces direction from which approach is to be made; moves arms from sides to horizontal position, green flag in right hand, red flag concealed in hip pocket. Finish signal with green flag above head, left index finger pointing to landing spot.

NIGHT—Same as day, using green and amber wands.



Signal 2-26

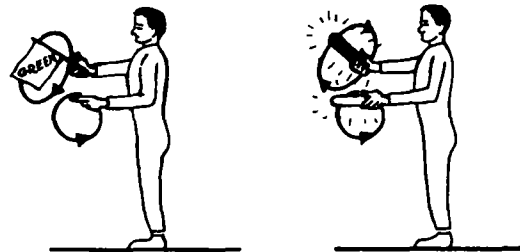
NATO—UNCLASSIFIED

NATO—UNCLASSIFIED

2-27 LOWER WHEELS

DAY—When pilot approaches director with landing gear retracted, director gives pilot signal by side view of a cranking circular motion of the hands, green flag in right hand.

NIGHT—Same as day, using green and amber wands rather than green flag.



Signal 2-27

2-28 DROOP STOPS NOT IN

After pilot disengages rotors, director holds "thumbs down" on pilot until droop stops drop in.

2-29 DROOP STOPS ARE IN

Director indicates by "thumbs-up" that droop stops have dropped in.

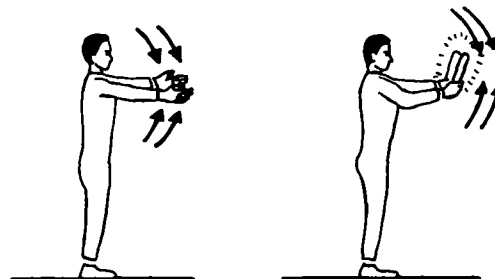


Signals 2-28 and 2-29

2-30 HOOK NOT DOWN (OR UP)

DAY—Short chopping motion to the side with arms to indicate "hook not down" or "hook not up". Meaning depends on position of hook when signal given. Hands alternate, using up and down chopping action.

NIGHT—Same as day, using green and amber wands.



Signal 2-30

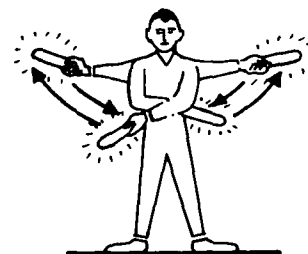
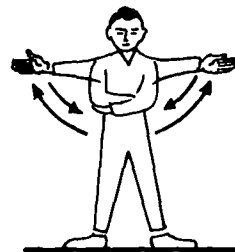
NATO—UNCLASSIFIED

NATO—UNCLASSIFIED

2-31 OPEN/CLOSE BOW DOORS

DAY—Director uses arms from a "bear hug" position to arms wide apart at shoulder height for opening bow doors. Reverse signal for closing bow doors.

NIGHT—Same as day, using green and amber wands if helicopter is hovering, and red and amber if on the deck.



Signal 2-31

Section 3

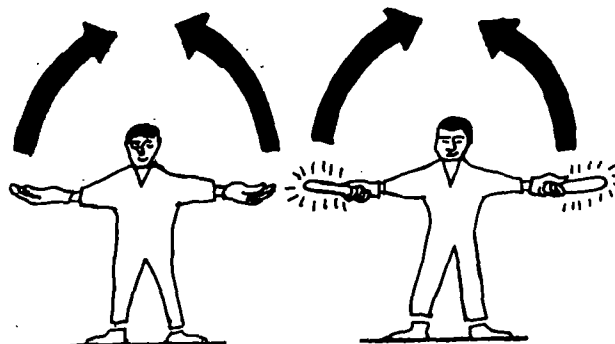
SPECIAL AIRCRAFT MARSHALLING SIGNALS
FOR HOVERING VTOL AND CUSHION AIRCRAFT

3-1 VERTICAL MOVEMENT

a. MOVE UPWARDS

Arms extended horizontally sideways beckoning upwards, with palms turned up. Speed of movement indicates rate of ascent.

Conforms to ICAO signal



Signal 3-1a

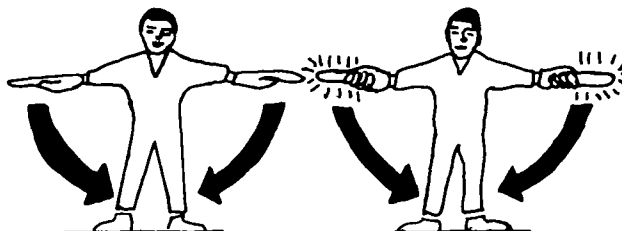
NATO—UNCLASSIFIED

NATO—UNCLASSIFIED

b. MOVE DOWNWARDS

Arms extended horizontally sideways beckoning downwards, with palms turned down. Speed of movement indicates rate of descent.

Conforms to ICAO signal



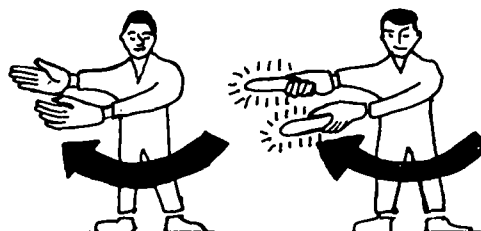
Signal 3-1b

3-2 HORIZONTAL MOVEMENT

a. MOVE TO PORT (LEFT)

Right arm extended horizontally sideways in direction of movement and other arm swung in front of body in same direction, in a repeating movement.

Conforms to ICAO signal

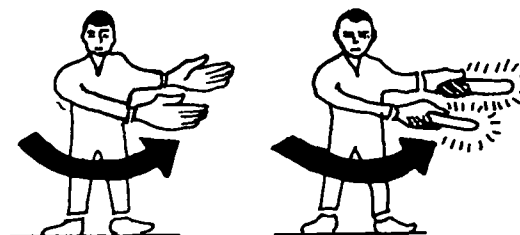


Signal 3-2a

b. MOVE TO STARBOARD (RIGHT)

Left arm extended horizontally sideways in direction of movement and other arm swung in front of body in same direction, in a repeating movement.

Conforms to ICAO signal

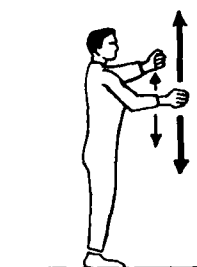


Signal 3-2b

NATO—UNCLASSIFIED

NATO—UNCLASSIFIED**3-3 HOOK UP LOAD**

Rope climbing motion with hands.

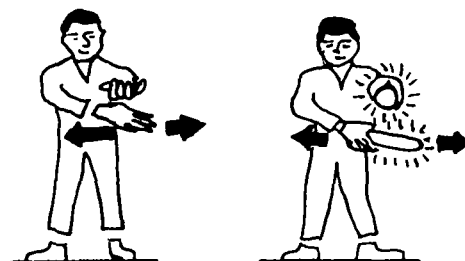


Signal 3-3a

b. RELEASE LOAD

Left arm extended forward horizontally, fist clenched, right hand making horizontal slicing movement below the left fist, palm downward.

No equivalent ICAO signal

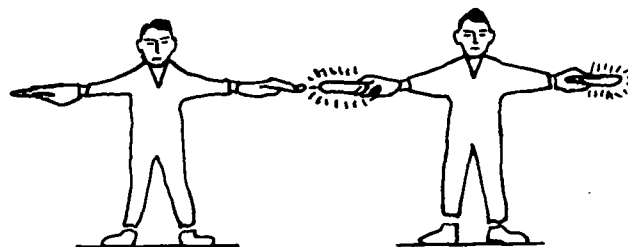


Signal 3-3b

3-4 HOVER

Arms extended horizontally sideways, palms downward.

Conforms to ICAO signal



Signal 3-4

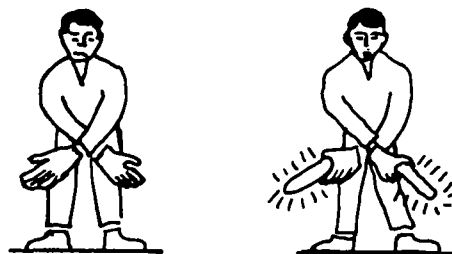
NATO—UNCLASSIFIED

NATO—UNCLASSIFIED

3-5 LAND

Arms crossed and extended downwards in front of the body.

Conforms to ICAO signal



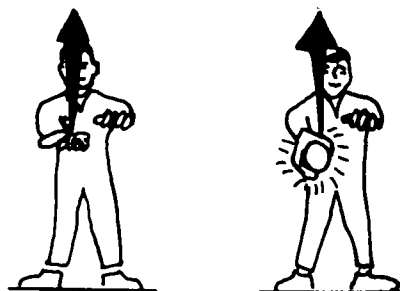
Signal 3-5

3-6 WINCH

a. WINCH UP

Left arm horizontal in front of body, fist clenched, right hand with palm turned upwards making upward motion.

No equivalent ICAO signal

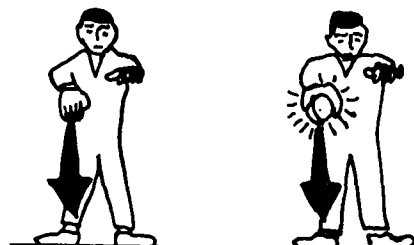


Signal 3-6a

b. WINCH DOWN

Left arm horizontal in front of body, fist clenched; right hand with palm turned downwards making downward motion.

No equivalent ICAO signal



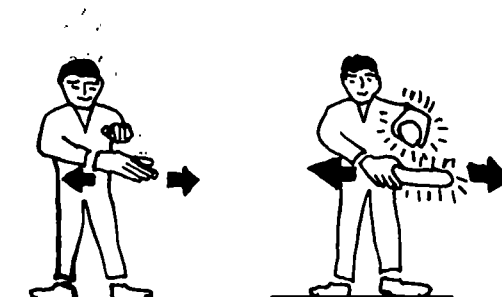
Signal 3-6b

NATO—UNCLASSIFIED

NATO—UNCLASSIFIED**c. CUT CABLE**

A signal the same as "RELEASE LOAD" to be used only when winching.

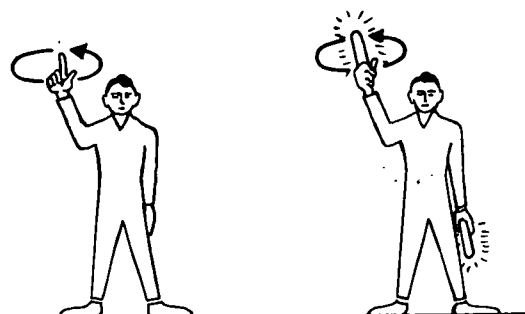
No equivalent ICAO signal



Signal 3-6c

3-7 ENGAGE ROTORS

Circular motion in horizontal plane with right hand above head.



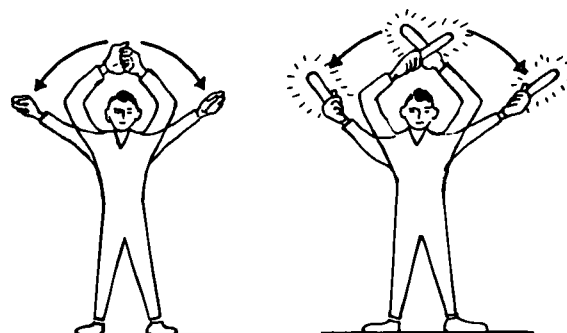
Signal 3-7

3-8 WAVE OFF

Landing officer waves arms overhead. "Go around".

NIGHT—Same as day using green and amber wands.

NOTE: Applies regardless of color of signal device.



Signal 3-8

NATO—UNCLASSIFIED

NATO UNCLASSIFIED

Section 4

DISTINCTIVE GARMENT TO BE WORN BY AIRCRAFT

MARSHALLERS

1. The distinctive garment described below will be worn by aircraft marshallers to enable flying personnel of one NATO Nation to identify as such the aircraft marshallers of another, and so to promote the safety and efficiency of NATO Forces.
2. The garment will be of fluorescent international orange color or yellow and consist of a sleeveless garment, reaching to the waist both at the front and back, covering the shoulders and tied by ribbons at the waist, the garment may be marked with individual numbers on the front and back at the discretion of participating nations.

NATO UNCLASSIFIED

APPENDIX E

STANAG 3327, AIR TRANSPORTATION OF DANGEROUS CARGO

NATO UNCLASSIFIED

Original English/French Translation

STANAG No. 3327DETAILS OF AGREEMENTAIR TRANSPORTATION OF DANGEROUS CARGO

1. Participants agree that the categorization and authorization for the transport by air of explosives, radioactive materials and other dangerous cargo (for example, corrosive, poisonous or highly inflammable materials) by each NATO nation will be acceptable by the other NATO nations as applicable for onward carriage by their own military aircraft during emergency or war.
2. Special restrictions and precautions in handling will be notified by the originating nation to the other nation(s) concerned at the time acceptance is sought.
3. Qualified escorts will be provided as required by the originating nation.
4. In the case of dangerous cargo being handed over from one nation to another for onward carriage without previous or accompanying instructions as to safety precautions to be observed during transport, the safety regulations of the nation accepting the cargo will apply.

NATO UNCLASSIFIED



APPENDIX F

STANAG 3465, SAFETY EMERGENCY AND SIGNALLING PROCEDURES FOR TACTICAL AIR TRANSPORT OPERATIONS

NATO UNCLASSIFIED

Original French/English Translation

STANAG 3465
(Edition No. 3)

DETAILS OF AGREEMENT (DofA) SAFETY EMERGENCY AND SIGNALLING PROCEDURES FOR TACTICAL AIR TRANSPORT OPERATIONS

Annexes: A (DofA)—Safety Perimeter and Vehicle Access Routes to Transport Aircraft.
B (DofA)—Warning Signals and Signals of Execution for Emergency Procedures.

AGREEMENT1. Safety on the Ground.

For each type of aircraft, a safety perimeter must be defined and forbidden to all personnel not taking part in the maintenance, supplying and loading operations.

a. Safety Perimeter. Annex A shows a typical safety perimeter.

b. Vehicle Traffic.

(1) All traffic on the airfield will be regulated according to a traffic plan. The maximum speed of vehicles must be indicated by signposts on congested or dangerous routes.

(2) The movement of vehicles is forbidden within the safety perimeter except for supply, loading or unloading operations. A diagram for approach and clearing by vehicles is shown in Annex A—Safety Perimeters.

c. Loading, Unloading and Supplying of Aircraft.

(1) In order to avoid any damage to the aircraft, the loading and unloading operations must be carried out under the control of a competent representative of the Air Transport Unit with experienced personnel and appropriate equipment.

(2) Special attention must be given to the movement of vehicles within the safety perimeter. In all cases chocks will be placed at such a distance that the vehicle cannot damage the aircraft.

(3) The loading and unloading of heavy or bulky loads must be carried out with special precautions.

d. Fire Risks.

(1) It is essential that all fire risks be eliminated on the hard standings. Any flame must be prohibited with 30 metres of the safety perimeter. Smoking will be prohibited within the same area.

(2) Fire extinguishing equipment (extinguishers, sand) must be placed in conspicuous positions near the hard standings.

e. Explosives, Ammunition, Dangerous Cargoes.

(1) Those must be stocked at the prescribed safety distance (where applicable) from the hard standings.

(2) The handling of this type of cargo must be carried out with the prescribed precautions. See STANAG 3327, Air Transportation of Dangerous Cargo.

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(3) The air transport unit will ensure that aircraft are properly earthed (grounded) to provide for electrical discharge.

2. Safety Precautions Related to Air Transports.

a. Before each flight, the Captain of the aircraft or his designated representative must explain the emergency procedures to all transported personnel i.e. emergency, hook-up, abandon aircraft, forced landing, and ditching signals. The drop and emergency signals will be tested before taxiing.

b. Smoking will be prohibited inside the aircraft on the ground. In flight, permission to smoke will be granted at the discretion of the Captain of the aircraft or his designated representative. Under no circumstances will smoking be allowed—

(1) During refuelling.

(2) When fuel vapours are detected in the aircraft.

(3) In aircraft with fuselage supplementary fuel tanks.

c. All equipment (e.g., wheel chocks, tool boxes, luggage, cargo or safety equipment) must be lashed in the aircraft before taxiing. The lashing must be checked by the aircraft Captain or his designated representative during preflight inspection and periodically during flight.

d. Crew and passengers must be strapped in their seats before taxiing and will remain so until authorized, by the Captain of the aircraft or his designated representative, to unfasten their seat belts. Seat belts will be fastened in flight when ordered by the aircraft captain. After landing seat belts will only be unlocked after the aircraft has come to rest, all engines stopped.

NOTE. This procedure may be modified in the case of assault landings.

e. The wearing of parachutes by crew and airborne personnel will be prescribed by the national authority operating the aircraft.

f. In flight over water, life jackets will be worn at the discretion of the Captain or his designated representative.

g. In flight, movements by passengers in the aircraft will be kept to a minimum. Only personnel authorized by the Captain of the aircraft or his designated representative may enter the crew compartment.

h. The Captain of the aircraft is responsible for insuring that passengers obey the safety and emergency rules.

j. All dangerous material will be stowed in such a manner that it will be easily accessible in flight without moving other cargo.

k. All dangerous material will be loaded and stored away from oxygen and heating outlets, sources of heat and away from sources of sparks, such as auxiliary power generators and invertors.

l. Visual Signals to passengers:

Reason for applied procedure	Description of Signal	Procedure to be complied with
Take-off	Arms spread on both sides of body, fists closed at belt level, draw fists simultaneously back to stomach.	—Sit down —Fasten belts —Do not smoke
In flight	The fists being joint on the stomach spread arms, fists remaining at belt level.	—Unfasten belts —Moving about in aircraft allowed (limitation laid down by a/c captain) —Smoking allowed (restrictions possible).
Landing or Turbulence or In-flight incident	Arms spread on both sides of body, fists closed at belt level, draw fists simultaneously back to stomach.	—Sit down —Fasten belts —Do not smoke.

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NATO UNCLASSIFIED3. Safety on the Drop/Landing Zones.a. Safety on the Drop Zones.

The designated Commander of the Operation will allocate responsibility for safety on the drop zones. This may include:

- (1) Marking of the drop zone.
- (2) Operating radio-communication facilities with aircraft in flight, and radio-electric or electronic aids.
- (3) Clearing of the drop zone of all nonessential personnel and equipment.
- (4) Insuring the presence of medical personnel and means for medical evacuation (by land or by air).
- (5) Relaying meteorological data, results on parachuting and any other information which may have an influence on the safety of the drop or the flights.
- (6) Cancellation, postponement or renewal of the operation.

b. Safety on the Landing Zones.

The Commander of the Detachment in local control of the landing zone will be responsible for:

- (1) Inspecting runways, taxiways and hard standings prior to, and at regular intervals during the operation.
- (2) Marking the landing zone.
- (3) Noting and marking obstacles on the landing and take-off axis.
- (4) Operating radio-electric and electronic facilities.
- (5) Observing and coordinating aircraft traffic.
- (6) Evaluating and transmitting to aircraft, data which might affect the safety of landings and take-off:
 - Wind (force and direction).
 - Presence of vehicles, aircraft and personnel on or near the landing zone.
 - Presence of aircraft operating within the circuit.
 - Presence of obstacles to approach or take-off.
 - Enemy action.

(7) Informing the airfield Commander if conditions become such that take-off and landing will no longer be safe. The latter will decide whether to cancel, or continue the operation and will inform the Commander of the Operation.

- (8) Relaying the orders of the Ground Commander.

4. Emergency procedures and signals.

a. Every aircraft passenger has to know procedure and emergency signals, which are to be recalled by the aircraft captain or his deputy before engines are started. Signals are tested before taxiing and may subsequently be used only in case of emergency.

b. Emergency signals fall into two categories; warning signals and signals of execution:

(1) Warning Signals.

In flight, as soon as the warning signal is given passengers are reminded by a crew member of instructions as to what should be done.

In case it is necessary to lighten the aircraft in flight, passengers designated by a crew member shall help to jettison load.

When ordered to do so, passengers shall put on or adjust emergency equipment, if provided, with the possible assistance of a crew member.

NOTE. Security signals given for take-off and landing operations should be considered as warning signals for a possible crash landing or ditching. Passengers shall unfasten seat belts only when ordered to do so in accordance with instructions given prior to the flight.

(2) Signals of execution.

In flight, as soon as a signal of execution is given, passengers are to comply with existing instructions or with instructions given prior to the flight and with any special orders that might be given by crew members.

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c. Warning Signals and Signals of Execution are presented in Annex B.

d. Fire in Flight.

In case fire breaks out in the cabin, passengers must—

- (1) Warn crew immediately.
- (2) Comply with instructions given by the aircraft captain or his deputy.

5. In Flight Timing and Signal Light Procedures.

a. Timing Procedures.

Prior to the flight, the aircrew and the jumpmaster/dispatcher will confirm the desired time signals. These signals will be relayed from the loadmaster/air quartermaster to the jumpmaster/dispatcher in the following manner:

- (1) The loadmaster/air quartermaster will indicate time out from the Drop Zone with his hands, using one finger for each minute.
- (2) The jumpmaster/dispatcher will use national signals in transmitting instructions to the paratroopers.

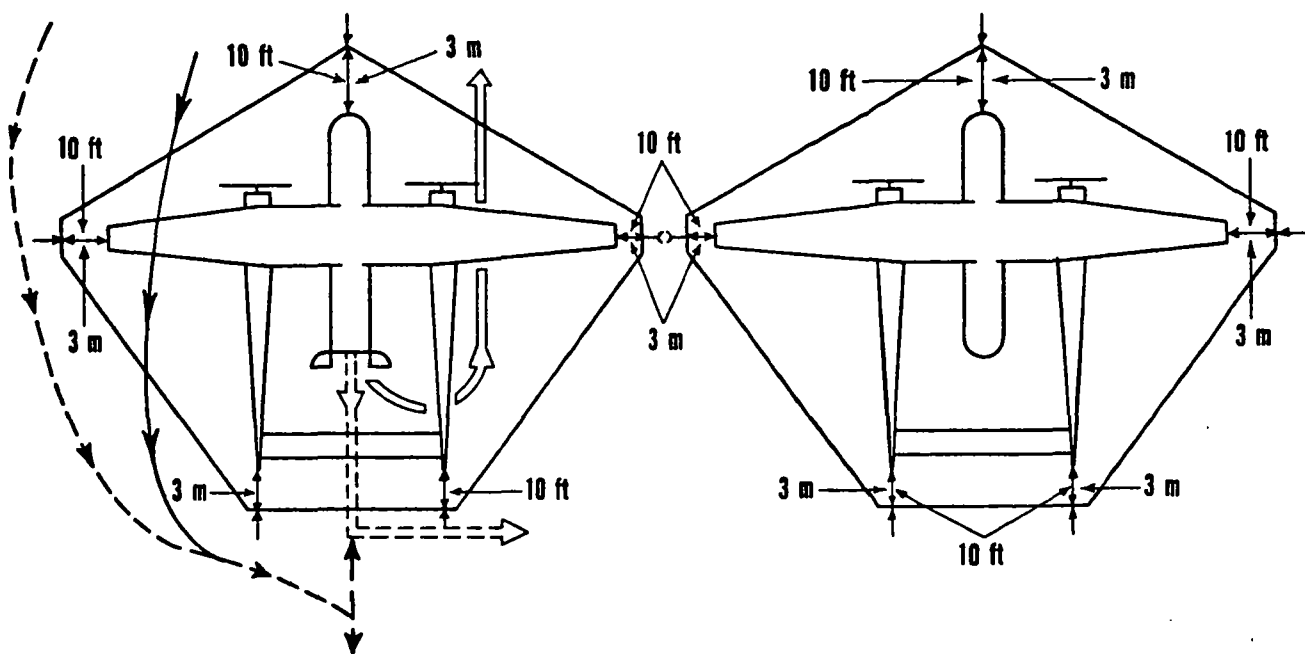
b. Signals Light Procedures.

- (1) The preparatory red light will be turned on at the time agreed upon at the preflight briefing.
- (2) The red light will be turned off and the green light turned on at the time of the drop.
- (3) The green light will be turned off and the red light will be turned on when it is no longer safe to drop.

IMPLEMENTATION OF THE AGREEMENT

6. This STANAG will be considered implemented when the provisions of the Details of Agreement (paragraphs 1 through 5 above) have been included in the appropriate national standing orders and manuals. It is understood that this STANAG is a guide and that, in every case, standard operating instructions of individual nations will have priority.

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NATO UNCLASSIFIEDANNEX A TO THE DETAILS OF AGREEMENT OF
STANAG 3465 (Edition No 3)

- Approche autorise - Authorized approach to the aircraft
- ==>== Degagement autorise - Authorized exit path from the aircraft
- Approche interdite - Forbidden approach path to the aircraft
- ==>== Degagement interdit - Forbidden exit path from the aircraft

m = metres ft = feet

SAFETY PERIMETER AND VEHICLE ACCESS ROUTES TO TRANSPORT AIRCRAFT
PERIMETRE DE SECURITE ET SCHEMA D'APPROCHE ET DE DEGAGEMENT DES VEHICLES

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NATO UNCLASSIFIEDANNEX B TO DETAILS OF AGREEMENT
OF STANAG 3456 (Edition No. 3).WARNING SIGNALS AND SIGNALS OF EXECUTION FOR EMERGENCY PROCEDURES

Emergency	Warning Signal	Procedure to be complied with	Signal of Execution (1)	Procedure to be complied with
Crash during Take-off or Landing	Given by security signal for take-off or landing	Already accomplished by security procedure for take-off or landing	A LONG sound signal	—Protect head with arms —Remain seated until aircraft comes to a rest —Leave aircraft in orderly fashion through assigned exits.
Ditching or Crash Landing	A SHORT sound signal	<u>A crew member:</u> —recalls instructions as to action to be taken —gives special instruction <u>Passengers:</u> —comply with instructions received —take off parachute —(°) adjust rescue equipment —adjust helmet and belt —prop themselves up, using any possible padding material —(°) for ditching aircraft	A LONG sound signal	—Protect head with arms —Remain seated until aircraft comes to a rest —Leave aircraft in orderly fashion through assigned exits.

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NATO UNCLASSIFIEDANNEX B TO DETAILS OF AGREEMENT
OF STANAG 3465 (Edition No. 3)WARNING SIGNALS AND SIGNALS OF EXECUTION FOR EMERGENCY PROCEDURES

(Continued)

Emergency	Warning Signal	Procedure to be complied with	Signal of Execution (1)	Procedure to be complied with
Bail-out	—Three successive sound signals —Red light	<u>A crew member :</u> —recalls instructions as to action to be taken —gives special instructions —opens jump doors <u>Passengers :</u> —comply with instructions received —put on and adjust parachute and individual rescue equipment —prepare to abandon aircraft	—A LONG sound signal —GREEN light (2)	Passengers abandon aircraft in orderly fashion and as quickly as possible.

Notes:

- (1) The signal of execution is immediately followed by action.
- (2) If aircraft has to be abandoned immediately and no warning is possible, these two signals are given successively, without interval, and corresponding procedures are applied simultaneously.

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APPENDIX G**STANAG 3468, GENERAL RULES COVERING THE
TRANSPORT OF LOADS BY HELICOPTER**

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Original English/French translation

STANAG 3468DETAILS OF AGREEMENT (DofA)GENERAL RULES COVERING THE TRANSPORT OF LOADS BY HELICOPTERAGREEMENT

1. Participating nations agree that the following general rules shall apply when military cargo is carried by helicopters.

DEFINITIONS (for purposes of this agreement only)

2. a. "Helicopter Unit"—The unit owning, or preparing, the cargo to be carried.

PROVISION OF EQUIPMENT

3. The division of responsibility for the provision of special equipment will be as follows:

a. Internal loads.

(1) Helicopter unit—Lashing, tie downs, and any equipment organic to the helicopter unit required exclusively for helicopter transport operations.

(2) User unit—Pallets, containers and special loading aids.

b. External loads.

(1) Helicopter unit—All equipment connected to the helicopter down to and including the hook to engage to the load and any other equipment organic to the helicopter unit required exclusively for helicopter transport operations.

(2) User unit—All equipment required to contain or rig the load to enable it to be attached to the helicopter hook.

PROVISION OF PERSONNEL

4. The user unit will normally provide specially trained personnel to marshal helicopters to their landing points and for release and pick-up of external loads.

5. Marshalling signals to be used are set out in STANAG 3117 (Edition No 2) "AIRCRAFT MARSHALLING".

6. The user unit will also provide personnel to load and unload cargo and to hook up external loads. When necessary, instructions on hook-up procedure will be given by the helicopter unit.

PLANNING AND PREPARATION

7. The helicopter unit will be advised on the type, weight and volume of the cargo. The helicopter unit will state which method of carriage is to be employed. If the cargo is to be carried internally, and

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no crew chief is carried, a lateral line with a smaller longitudinal line at its middle should be marked on the floor through the mean center of gravity of the helicopter about which the cargo is to be evenly distributed.

8. The user unit will be informed of the type of helicopter allotted, the payload for each aircraft and method of carriage. The user unit will prepare cargo by aircraft loads and mark the weight and density loading on the complete load and on each individual element to be loaded.

9. The preparation and carriage of dangerous cargo should be in accordance with the terms of STANAG 3327 ("AIR TRANSPORTATION OF DANGEROUS CARGO") or current national regulations as applicable.

LOADING

10. The user unit is responsible for the correct loading and restraining of cargo in the helicopter and for the hook-up of an external load. If a crew chief is carried in the helicopter the user unit will follow his directions.

11. The final responsibility for the acceptance of a load, including the distribution and restraint of the internal cargo, rests with the pilot.

12. When the automatic hook-up system is in general service details of the equipment and technique will be included in this STANAG.

UNLOADING

13. The user unit is responsible for unloading cargo carried internally.

14. The recovery of slings, nets, etc. . . ., is the responsibility of the user unit. However the helicopter unit can assist by back loading in helicopters returning empty.

DISCHARGE OF STATIC ELECTRICITY

15. In loading or unloading an internal or external load, if there is danger to the ground loading staff from aircraft static electricity, the responsibility for discharging the static electricity will rest with the ground personnel.

IMPLEMENTATION

16. This agreement will be considered to have been implemented when the provisions of the Details of Agreement (para 1 through 15) have been included in the appropriate national standing orders or manuals.

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Distribution:

To be distributed in accordance with DA Form 12-11 requirements for AAVN Transport Service and Units in Field Army.

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